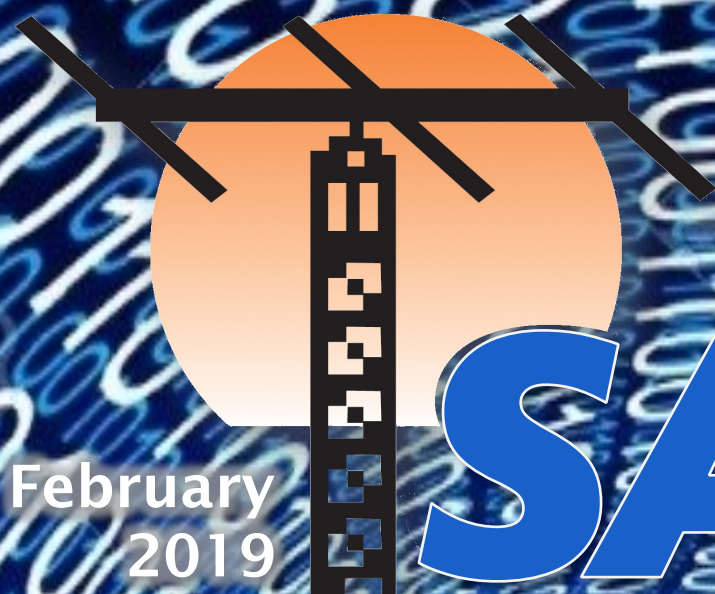


The

Communicator

A Publication Of Surrey Amateur Radio Communications



February
2019

SARC

8

All About FT-8 Issue!

February 2019



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The **Communicator** is a publication of Surrey Amateur Radio Communications. It appears monthly, except July and August, for area Amateur Radio operators and beyond, to enhance the exchange of information and to promote ham radio activity.

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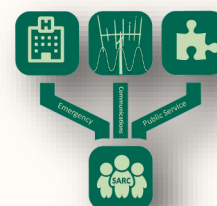
Regular readers who are not SARC members are invited to contribute a \$5 annual [donation](#) towards our Field Day fund via [PayPal](#).

SARC maintains a website at www.ve7sar.net and a Digital Communicator at ve7sar.blogspot.ca that includes recent news, past issues of The Communicator, our history, photos, videos and other information.

IN THIS ISSUE

click on the page number below

QRM	3
The Rest Of The Story—Michael Faraday	4
Back To Basics—The Diode	8
Wire Snippets	11
What's Happening This Month In Ham?	12
News You Can Lose—Ham Humour	13
SARC News	14
Surrey Operations & Training Centre News	16
The Contest Contender	17
One Ham's View	18
Public Service Comms—SEPAR Report	22
KB6NU's Column	26
A First Hand Look—FT8	28
Tech Topics—FT8	31
Foundations of Amateur Radio	34
Ham Recipes	37
Tech Topics—Arts and Crafts	38
BC QSO Party	41
Solder Splatter	42
QRT	50



On The February Cover...

Some in SARC have been busy... We have discovered FT8, a new digital mode that minimizes bandwidth and seems to get through despite the weak propagation during the current solar minimum. Using the power of a Christmas tree lightbulb, about 5 Watts, Dx contacts are possible. We'll tell you about that, and much more in this issue.



QRM

---...---

...from the Editor's Shack

*Do you have a photo or bit of SARC news to share?
An interesting link?*

*Something to sell or something you are looking for?
eMail it to [communicator @ ve7sar.net](mailto:communicator@ve7sar.net) for inclusion in this publication.*

February and we are in the middle of the 'Wet' Coast rainy season here. They say you don't tan here, you rust.

Here at VE7TI January has been filled with a re-write and update of our popular Basic Amateur Radio course. Our first class of the year started January 15th and we have 15 students registered. They took the class for various reasons, some to support communications while out in the bush, some out of interest for the hobby and some for the emergency preparedness component. We have our first student signed up out of the [Neighbourhood Emergency Preparedness Program](#) [NEPP].

In Surrey the program is supported by the Surrey Fire Service and the City of Surrey Emergency Program. NEPP facilitators conduct meetings with citizen groups and then act as consultants as those groups develop their response plans. Personal preparedness is the first step of NEPP. The second step focuses on setting up your neighbourhood team, including the following response units:

- Shelter and Care Giving
- Communications and Transportation
- Light Urban Search and Rescue
- Utilities and Fire Suppression
- Disaster First Aid

• Damage Assessment

It is the communications portion that SARC would like to get more involved in as it is our forte. Currently NEPP advocates the use of FRS radios and we think we can improve on that. Anyone who has used an FRS radio at a popular holiday spot can attest that it is nearly impossible to pass a message in crowded band conditions with minimal power.

We hope to work with NEPP to increase the number of trained Amateur Radio operators available.

There are a couple of SARC members who have taken to FT8 in a serious way. It is a free program and easily interfaced to a transceiver that has the capability to do other digital modes. My own results have been amazing and I already have 35 US States and several countries in the log. It is a way to stay active on the bands while the sun has a rest.

Contest season is in full swing as well and we have several completed and several more on the way, including our own BC QSO Contest on February 2nd and 3rd. Hopefully band conditions will be favourable.

Hope to hear you on the air.

~ John VE7TI
Communicator Editor

On the Web

ve7sar.net

Between newsletters, watch your e-mail for news, announcements of Amateur Radio events, monthly meetings and training opportunities.

Click the links below to follow our presence on the web:

SARC Blog
ve7sar.blogspot.ca

Twitter
[@ve7sar](https://twitter.com/ve7sar)

FaceBook
[SurreyAmateurRadio](https://www.facebook.com/SurreyAmateurRadio)

Our YouTube Channel
[SurreyARC](https://www.youtube.com/SurreyARC)

SARC Photo Albums
[Web Albums](#)

or
tinyurl.com/SARCphoto

Destiny is for people who are too lazy to create alternate timelines.—R. Stevens

February 2019



The Rest Of The Story...

Michael Faraday

Man Of Many Talents

Michael Faraday FRS (22 September 1791 - 25 August 1867) was a British scientist who contributed to the study of electromagnetism and electrochemistry. His main discoveries include the principles underlying electromagnetic induction, diamagnetism and electrolysis.



Michael Faraday

Although Faraday received little formal education, he was one of the most influential scientists in history. It was by his research on the magnetic field around a conductor carrying a direct current that Faraday established the basis for the concept of the electromagnetic field in physics. Faraday also established that magnetism could affect rays of light and that there was an underlying relationship between the two phenomena. He similarly discovered the principles of electromagnetic induction and diamagnetism, and the laws of electrolysis. His inventions of electromagnetic rotary devices formed the foundation of electric motor technology, and it was largely due to his efforts that electricity became practical for use in technology.

As a chemist, Faraday discovered benzene, investigated the clathrate hydrate of chlorine, invented an early form of the Bunsen burner and the system of oxidation numbers, and popularized terminology such as "anode", "cathode", "electrode" and "ion".

Faraday was an excellent experimentalist who conveyed his ideas in clear and simple language; his mathematical abilities, however, did not extend as far as trigonometry and were limited to the simplest algebra. James Clerk Maxwell took the work of Faraday and others and summarized it in a set of equations which is accepted as the basis of all modern theories of electromagnetic phenomena. The SI unit of capacitance is named in his honour: the farad.

Albert Einstein kept a picture of Faraday on his study wall, alongside pictures of Isaac Newton and James Clerk Maxwell. Physicist Ernest Rutherford stated, "When we consider the magnitude and extent of his discoveries and their influence on the progress of science and of industry, there is no honour too great to pay to the memory of Faraday, one of the greatest scientific discoverers of all time."

Michael Faraday was born on 22 September 1791 in Newington Butts, which is now part of the London Borough of Southwark but was then a suburban part of Surrey. His family was not well off. His father, James, was a member of the Glassite sect of Christianity. James Faraday moved his wife and two children to London during the winter of 1790 from Outhgill in Westmorland, where he had been an apprentice to the village blacksmith. Michael was born in the autumn of that year. The young Michael Faraday, who was the third of four children, having only the most basic school education, had to educate himself.

At the age of 14 he became an apprentice to George Riebau, a local bookbinder and

bookseller in Blandford Street. During his seven-year apprenticeship Faraday read many books, including Isaac Watts's *The Improvement of the Mind*, and he enthusiastically implemented the principles and suggestions contained therein. He also developed an interest in science, especially in electricity. Faraday was particularly inspired by the book *Conversations on Chemistry* by Jane Marcet.

In 1812, at the age of 20 and at the end of his apprenticeship, Faraday attended lectures by the eminent English chemist Humphry Davy of the Royal Institution and the Royal Society, and John Tatum, founder of the City Philosophical Society. Many of the tickets for these lectures were given to Faraday by William Dance, who was one of the founders of the Royal Philharmonic Society. Faraday subsequently sent Davy a 300-page book based on notes that he had taken during these lectures. Davy's reply was immediate, kind, and favourable. In 1813, when Davy damaged his eyesight in an accident with nitrogen trichloride, he decided to employ Faraday as an assistant. Coincidentally one of the Royal Institution's assistants, John Payne, was sacked and Sir Humphry Davy had been asked to find a replacement; thus he appointed Faraday as Chemical Assistant at the Royal Institution on 1 March 1813. Very soon Davy entrusted Faraday with the preparation of nitrogen trichloride samples, and they both were injured in an explosion of this very sensitive substance.

In the class-based English society of the time, Faraday was not considered a gentleman. When Davy set out on a long tour of the continent in 1813-15, his valet did not wish to go, so instead, Faraday went as Davy's scientific assistant and was asked to act as Davy's valet until a replacement could be found in Paris. Faraday was forced to fill the role of valet as well as assistant throughout the trip. Davy's wife, Jane Apreece, refused to treat Faraday as an equal (making him travel outside the coach, eat with the servants, etc.), and made Faraday so miserable that he contemplated returning to England alone and giving up science

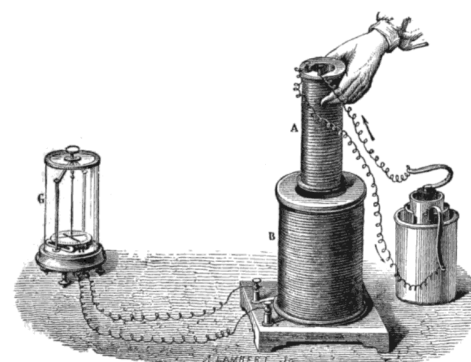
altogether. The trip did, however, give him access to the scientific elite of Europe and exposed him to a host of stimulating ideas.

Faraday married Sarah Barnard (1800-1879) on 12 June 1821. They met through their families at the Sandemanian church, and he confessed his faith to the Sandemanian congregation the month after they were married. They had no children.

In June 1832, the University of Oxford granted Faraday a Doctor of Civil Law degree (honorary). During his lifetime, he was offered a knighthood in recognition for his services to science, which he turned down on religious grounds, believing that it was against the word of the Bible to accumulate riches and pursue worldly reward, and stating that he preferred to remain "plain Mr. Faraday to the end". Elected a member of the Royal Society in 1824, he twice refused to become President. He became the first Fullerian Professor of Chemistry at the Royal Institution in 1833.

In 1832, Faraday was elected a Foreign Honorary Member of the American Academy of Arts and Sciences. He was elected a foreign member of the Royal Swedish Academy of Sciences in 1838, and was one of eight foreign members elected to the French Academy of Sciences in 1844. In 1849 he was elected as associated member to the Royal Institute of the Netherlands, which two years later became the Royal Netherlands Academy of Arts and Sciences and he was subsequently made foreign member.

Faraday suffered a nervous breakdown in 1839 but eventually returned to his investigations into electromagnetism. In 1848, as a result of representations by the Prince Consort, Faraday was awarded a grace and favour house in Hampton



One of Faraday's 1831 experiments demonstrating induction. The liquid battery (right) sends an electric current through the small coil (A). When it is moved in or out of the large coil (B), its magnetic field induces a momentary voltage in the coil, which is detected by the galvanometer (G).

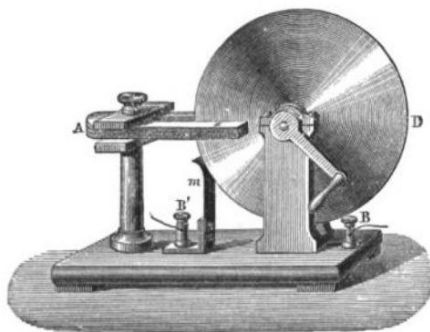
February 2019

Court in Middlesex, free of all expenses and upkeep. This was the Master Mason's House, later called Faraday House, and now No. 37 Hampton Court Road. In 1858 Faraday retired to live there.

Faraday invented an early form of what was to become the Bunsen burner, which is in practical use in science laboratories around the world as a convenient source of heat. Faraday worked extensively in the field of chemistry, discovering chemical substances such as benzene (which he called bicarburet of hydrogen) and liquefying gases such as chlorine.

Faraday is best known for his work regarding electricity and magnetism. His first recorded experiment was the construction of a voltaic pile with seven ha'penny coins, stacked together with seven disks of sheet zinc, and six pieces of paper moistened with salt water. With this pile he decomposed sulfate of magnesia (12 July 1812).

In 1821, soon after the Danish physicist and chemist Hans Christian Ørsted discovered the phenomenon of electromagnetism, Davy and British scientist William Hyde Wollaston tried, but failed, to design an electric motor. Faraday, having discussed the problem with the two men, went on to build two devices to produce what he called "electromagnetic rotation". One of these, now known as the homopolar motor, caused a continuous circular motion that was engendered by the circular magnetic force around a wire that extended



Built in 1831, the Faraday disk was the first electric generator. The horseshoe-shaped magnet (A) created a magnetic field through the disk (D). When the disk was turned, this induced an electric current radially outward from the center toward the rim. The current flowed out through the sliding spring contact m, through the external circuit, and back into the center of the disk through the axle.

into a pool of mercury wherein was placed a magnet; the wire would then rotate around the magnet if supplied with current from a chemical battery. These experiments and inventions formed the foundation of modern electromagnetic technology. In his excitement, Faraday published results without acknowledging his work with either Wollaston or Davy. The resulting controversy within the Royal Society strained his mentor relationship with Davy and may well have contributed to Faraday's assignment to other activities, which consequently prevented his involvement in electromagnetic research for several years.

Faraday continued his laboratory work, exploring electromagnetic properties of materials and developing requisite experience. In 1824, Faraday briefly set up a circuit to study whether a magnetic field could regulate the flow of a current in an adjacent wire, but he found no such relationship. This experiment followed similar work conducted with light and magnets three years earlier that yielded identical results. During the next seven years, Faraday spent much of his time perfecting his recipe for optical quality (heavy) glass, borosilicate of lead, which he used in his future studies connecting light with magnetism. In his spare time, Faraday continued publishing his experimental work on optics and electromagnetism; he conducted correspondence with scientists whom he had met on his journeys across Europe with Davy, and who were also working on electromagnetism. Two years after the death of Davy, in 1831, he began his great series of experiments in which he discovered electromagnetic induction, recording in his laboratory diary on 28 October 1831 he was; "making many experiments with the great magnet of the Royal Society".

Faraday's breakthrough came when he wrapped two insulated coils of wire around an iron ring, and found that upon passing a current through one coil a momentary current was induced in the other coil. This phenomenon is now known as mutual induction.

The iron ring-coil apparatus is still on display at the Royal Institution. In subsequent experiments, he found that if he moved a magnet through a loop of wire an electric current flowed in that wire. The current also flowed if the loop was moved over a stationary

magnet. His demonstrations established that a changing magnetic field produces an electric field; this relation was modelled mathematically by James Clerk Maxwell as Faraday's law, which subsequently became one of the four Maxwell equations, and which have in turn evolved into the generalization known today as field theory. Faraday would later use the principles he had discovered to construct the electric dynamo, the ancestor of modern power generators and the electric motor.

In 1832, he completed a series of experiments aimed at investigating the fundamental nature of electricity; Faraday used "static", batteries, and "animal electricity" to produce the phenomena of electrostatic attraction, electrolysis, magnetism, etc. He concluded that, contrary to the scientific opinion of the time, the divisions between the various "kinds" of electricity were illusory. Faraday instead proposed that only a single "electricity" exists, and the changing values of quantity and intensity (current and voltage) would produce different groups of phenomena.

Near the end of his career, Faraday proposed that electromagnetic forces extended into the empty space around the conductor. This idea was rejected by his fellow scientists, and Faraday did not live to see the eventual acceptance of his proposition by the scientific community. Faraday's concept of lines of flux emanating from charged bodies and magnets provided a way to visualize electric and magnetic fields; that conceptual model was crucial for the successful development of the electromechanical devices that dominated engineering and industry for the remainder of the 19th century.

Faraday Cage

In his work on static electricity, Faraday's ice pail experiment demonstrated that the charge resided only on the exterior of a charged conductor, and exterior charge had no influence on anything enclosed within a conductor. This is because the exterior charges redistribute such that the interior fields emanating from them cancel one another. This shielding effect is used in what is now known as a Faraday cage.

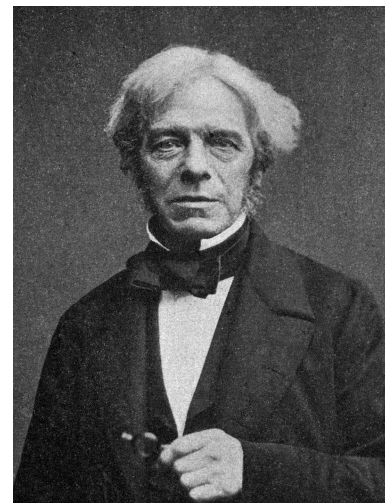
Beyond his scientific research into areas such as chemistry, electricity, and magnetism at the Royal Institution, Faraday undertook numerous, and often time-consuming, service projects for private enterprise and the British government. This work included investigations of explosions in coal mines, being an expert witness in court, and along with two engineers from Chance Brothers c.1853, the preparation of high-quality optical glass, which was required by Chance for its lighthouses. In 1846, together with Charles Lyell, he produced a lengthy and detailed report on a serious explosion in the colliery at Haswell, County Durham, which killed 95 miners. Their report was a meticulous forensic investigation and indicated that coal dust contributed to the severity of the explosion. The report should have warned coal owners of the hazard of coal dust explosions, but the risk was ignored for over 60 years until the Senghenydd Colliery Disaster of 1913.

Having provided a number of various service projects for the British government, when asked by the government to advise on the production of chemical weapons for use in the Crimean War (1853-1856), Faraday refused to participate citing ethical reasons.

Faraday died at his house at Hampton Court on 25 August 1867, aged 75. He had some years before turned down an offer of burial in Westminster Abbey upon his death, but he has a memorial plaque there, near Isaac Newton's tomb. Faraday was interred in the dissenters' (non-Anglican) section of Highgate Cemetery.

And that is the rest of this story.

~



February 2019



Back to Basics

John Schouten VE7TI

From The Canadian Basic Question Bank

This month a question about the diode...

B-003-017-006 The diode is an important part of a simple power supply. It converts AC to DC, since it:

1. has a high resistance to AC but not to DC
2. allows electrons to flow in only one direction from cathode to anode
3. has a high resistance to DC but not to AC
4. allows electrons to flow in only one direction from anode to cathode

A diode is a two-terminal electronic component that conducts current primarily in one direction; it has low (ideally zero) resistance in one direction, and high (ideally infinite) resistance in the other.

A diode vacuum tube or thermionic diode is a vacuum tube with two electrodes, a heated cathode and a plate, in which electrons can flow in only one direction, from cathode to plate. A semiconductor diode, the most common type today, is a crystalline piece of semiconductor material with a p-n junction connected to two electrical terminals.

Semiconductor diodes were the first semiconductor electronic devices. The discovery of asymmetric electrical conduction across the contact between a crystalline mineral and a metal was made by German physicist Ferdinand Braun in 1874. Today, most diodes are made of silicon, but other materials such as gallium arsenide and germanium are used.

The most common function of a diode is to allow an electric current to pass in one

direction (called the diode's forward direction), while blocking it in the opposite direction (the reverse direction). As such, the diode can be viewed as an electronic version of a check valve. This unidirectional behavior is called rectification, and is used to convert alternating current (ac) to direct current (dc). Forms of rectifiers, diodes can be used for such tasks as extracting modulation from radio signals in radio receivers.

However, diodes can have more complicated behavior than this simple on-off action, because of their nonlinear current-voltage characteristics. Semiconductor diodes begin conducting electricity only if a certain threshold voltage or cut-in voltage is present in the forward direction (a state in which the diode is said to be forward-biased). The voltage drop across a forward-biased diode varies only a little with the current, and is a function of temperature; this effect can be used as a temperature sensor or as a voltage reference. Also, diodes' high resistance to current flowing in the reverse direction suddenly drops to a low resistance when the reverse voltage across the diode reaches a value called the breakdown voltage.

A semiconductor diode's current-voltage characteristic can be tailored by selecting the semiconductor materials during manufacture. These techniques are used to create special-purpose diodes that perform many different functions. For example, diodes are used to regulate voltage (Zener diodes), to protect circuits from high voltage surges (avalanche diodes), to electronically tune radio and TV receivers (varactor diodes), to generate radio-frequency oscillations (tunnel diodes, Gunn diodes,



the diode can be viewed as an electronic version of a check valve...

IMPATT diodes), and to produce light (light-emitting diodes). Tunnel, Gunn and IMPATT diodes exhibit negative resistance, which is useful in microwave and switching circuits.

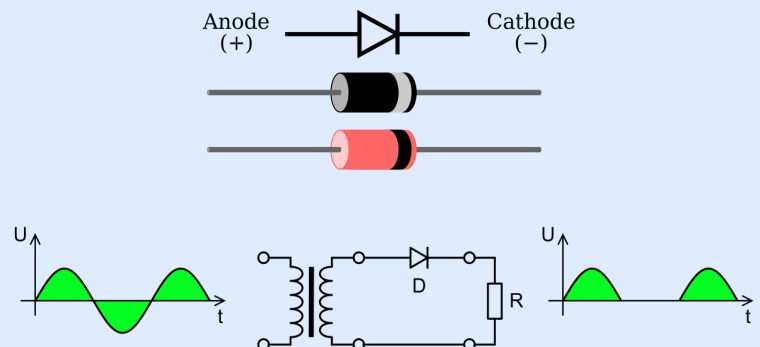
Thermionic (vacuum-tube) diodes and solid-state (semiconductor) diodes were developed separately, at approximately the same time, in the early 1900s, as radio receiver detectors. Until the 1950s, vacuum diodes were used more frequently in radios because the early point-contact semiconductor diodes were less stable. In addition, most receiving sets had vacuum tubes for amplification that could easily have the thermionic diodes included in the tube (for example the 12SQ7 double diode triode), and vacuum-tube rectifiers and gas-filled rectifiers were capable of handling some high-voltage/high-current rectification tasks better than the semiconductor diodes (such as selenium rectifiers) that were available at that time.

Throughout the vacuum tube era, valve diodes were used in almost all electronics such as radios, televisions, sound systems and instrumentation. They slowly lost market share beginning in the late 1940s due to selenium rectifier technology and then to semiconductor diodes during the 1960s. Today they are still used in a few high power applications where their ability to withstand transient voltages and their robustness gives them an advantage over semiconductor devices, and in musical instrument and audiophile applications.

Solid-state Diodes

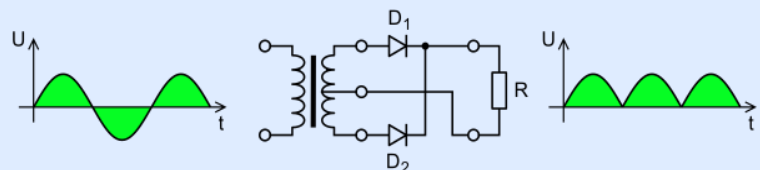
In 1874, German scientist Karl Ferdinand Braun discovered the "unilateral conduction" across a contact between a metal and a mineral. Indian scientist Jagadish Chandra Bose was the first to use a crystal for detecting radio waves in 1894. The crystal detector was developed into a practical device for wireless telegraphy by Greenleaf Whittier Pickard, who invented a silicon crystal detector in 1903 and received a patent for it on November 20, 1906. Other experimenters tried a variety of other minerals as detectors. Semiconductor principles were unknown to the developers of these early rectifiers.

During the 1930s understanding of physics advanced and in the mid 1930s researchers at Bell Telephone Laboratories recognized the potential of the crystal detector for application

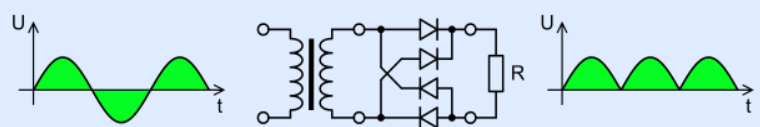


Half-wave rectification

In half-wave rectification of a single-phase supply, either the positive or negative half of the AC wave is passed, while the other half is blocked. Because only one half of the input waveform reaches the output, mean voltage is lower. Half-wave rectification requires a single diode in a single-phase supply, or three in a three-phase supply. Rectifiers yield a unidirectional but pulsating direct current; half-wave rectifiers produce far more ripple than full-wave rectifiers, and much more filtering is needed to eliminate harmonics of the AC frequency from the output.



For single-phase AC, if the transformer is center-tapped, then two diodes back-to-back (cathode-to-cathode or anode-to-anode, depending upon output polarity required) can form a full-wave rectifier. Twice as many turns are required on the transformer secondary to obtain the same output voltage than for a bridge rectifier, but the power rating is unchanged.



Full-wave rectification

A full-wave rectifier converts the whole of the input waveform to one of constant polarity (positive or negative) at its output. Mathematically, this corresponds to the absolute value function. Full-wave rectification converts both polarities of the input waveform to pulsating DC (direct current), and yields a higher average output voltage. Two diodes and a center tapped transformer, or four diodes in a bridge configuration and any AC source (including a transformer without center tap), are needed. Single semiconductor diodes, double diodes with common cathode or common anode, and four-diode bridges, are manufactured as single components.

February 2019

in microwave technology. Researchers at Bell Labs, Western Electric, MIT, Purdue and in the UK intensively developed point-contact diodes (crystal rectifiers or crystal diodes) during World War II for application in radar. After World War II, AT&T used these in their microwave towers that criss-crossed the United States, and many radar sets use them even in the 21st century. In 1946, Sylvania began offering the 1N34 crystal diode. During the early 1950s, junction diodes were developed.

P-N Junction Diode

A p-n junction diode is made of a crystal of semiconductor, usually silicon, but germanium and gallium arsenide are also used. Impurities are added to it to create a region on one side that contains negative charge carriers (electrons), called an n-type semiconductor, and a region on the other side that contains positive charge carriers (holes), called a p-type semiconductor. When the n-type and p-type materials are attached together, a momentary flow of electrons occur from the n to the p side resulting in a third region between the two where no charge carriers are present. This region is called the depletion region because there are no charge carriers (neither electrons nor holes) in it. The diode's terminals are attached to the n-type and p-type regions. The boundary between these two regions, called a p-n junction, is where the action of the diode takes place. When a sufficiently higher electrical

potential is applied to the P side (the anode) than to the N side (the cathode), it allows electrons to flow through the depletion region from the N-type side to the P-type side. The junction does not allow the flow of electrons in the opposite direction when the potential is applied in reverse, creating, in a sense, an electrical check valve.

The first use for the diode was the demodulation of amplitude modulated (AM) radio broadcasts. The diode rectifies the AM radio frequency signal, leaving only the positive peaks of the carrier wave. The audio is then extracted from the rectified carrier wave using a simple filter and fed into an audio amplifier or transducer, which generates sound waves.

Diodes are critical to converting AC to DC and they do so by allowing current to flow in only one direction, from cathode to anode.

Our sample question this month asked:

The diode is an important part of a simple power supply. It converts AC to DC, since it:

- 2. allows electrons to flow in only one direction from cathode to anode**

~ 73, John VE7TI

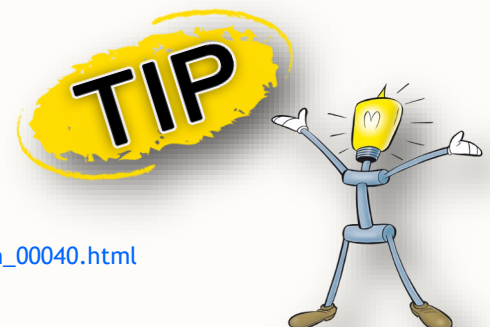
Study Links

Whether you are new to the hobby or brushing up on skills, you should find these study links helpful:

1. RIC-7 is the entire up-to-date Industry Canada (IC) Basic Question Bank. <http://tinyurl.com/CanadaBasicQB>
2. There is a RIC-7 that has some explanations along with the questions. [RIC-7 2014rev08.05 with explanations.](#)
3. The Amateur Radio Exam Generator is at: https://www.ic.gc.ca/eic/site/025.nsf/eng/h_00040.html
4. The ExHaminer Study software for Windows is at: <https://wp.rac.ca/exhaminer-v2-5/>
5. There are plenty of good resources for both basic and advanced exam study courtesy of the Cold Lake Amateur Radio Society at: <http://www.clares.ca/va6hal%20training.html>

Contact SARC if you wish to write the Basic or Advanced Exam. If you pass we'll even give you a year's free SARC membership!

Newly Licensed? When you receive your paper license in the mail, it will come with a form that can be filled out and mailed to the Radio Amateurs of Canada office, at which point an introductory RAC one-year membership will be set up. Introductory memberships are identical to our existing basic memberships and you will receive the The Canadian Amateur magazine for one year.



Wire Snippets

So, what if you could get rid of all the wires, and have a single box solution for digi modes which fits in your pocket? Audio Interface or sound card, CAT control cable and GPS to run FT8 and WSPR off grid and without the Internet.

An introduction to the NW Digital Radio FT8 project using Raspberry Pi.
<https://youtu.be/32nECrI7wsM>

Antarctic website for Hams and Chasers, for Students and Antarctic followers. Since 1979 <http://www.waponline.it>

Trying out some budget friendly Solar Power options. I found out about this foldable solar panel from K3RRR awhile back. A 100w foldable solar panel for less than \$200?
<http://www.w5kv.com/trying-out-some-budget-friendly-solar-power-options>

Google Assistant available via Ham Radio

William Franzin VE4VR decided it would be particularly cool to make Google Assistant available over ham radio - and that's exactly what he did. William got the idea for this project after first playing with the Internet Radio Linking Project, a system which uses VoIP technologies to link radio networks over the internet. Already having an IRLP node, it seemed only natural to make it into a gateway to the wider internet through integration with Google Assistant.

Early work involved activating the assistant via DTMF tones, but William didn't stop there - through the use of Picovoice, it became possible to use the system with the custom wakeword "Bumblebee".

Read the article and watch the video at

<https://hackaday.com/2019/01/05/google-assistant-now-available-on-ham-radio/>

February 2019

February 2019

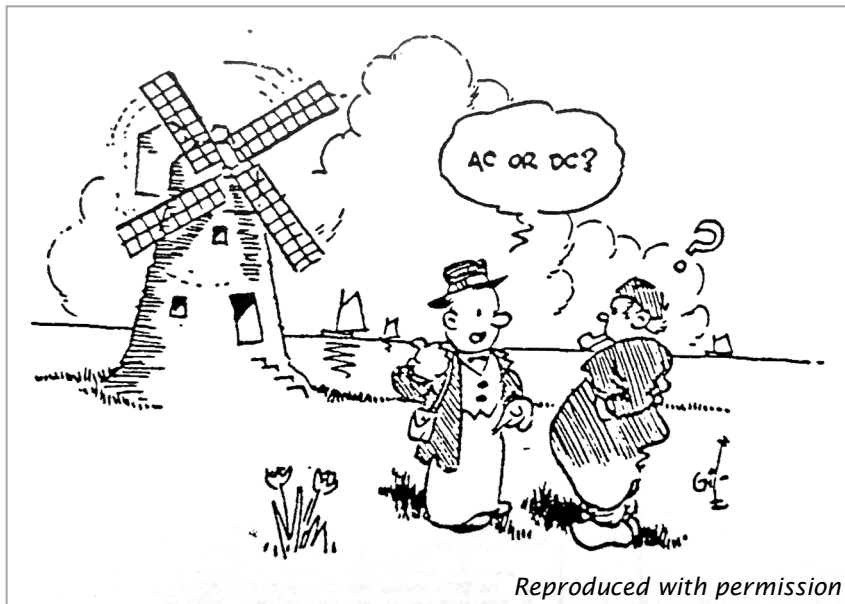
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	For details on all SARC events, go to ve7sar.net For details on all SEPARS events, go to separ.shutterfly.com/calendar				1	2 08-1000 SARC Social: Kalmar Family Restaurant King George Blvd & 81st Avenue CONTEST: BC QSO Party
3 CONTEST: BC QSO Party	4	5 1930 SEPAR Net 2000 SARC Net	6	7	8	9 08-1000 SARC Social: Kalmar Family Restaurant CONTEST: CQ WW WPX (RTTY)
10 CONTEST: CQ WW WPX (RTTY)	11	12 1930 SEPAR Net 2000 SARC Net	13 1900 SARC General Meeting	14 Valentine's  Day	15	16 08-1000 SARC Social: Kalmar Family Restaurant CONTEST: ARRL International DX (CW)
217 CONTEST: ARRL International DX (CW)	18	19 1930 SEPAR Net 2000 SARC Net	20	21	22	23 08-1000 SARC Social: Kalmar Family Restaurant CONTEST: NA QSO Party (RTTY)
24 CONTEST: NA QSO Party (RTTY)	25	26 1930 SEPAR Net 2000 SARC Net	27 1900 SARC Exec Meeting	28	1	2

Contest Details: <http://hornucopia.com/contestcal/contestcal.html>

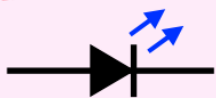


Page 13—News You Can Lose

The Lighter Side of Amateur Radio



Valentines For Hams



You make me glow.



I can hardly resist you.



I have the capacity to love you.



You electrify me.



You turn me on.



We resonate.



At The Last SARC Meeting...

January General Meeting

Wednesday, January 9, 2019

Attendees: 25

Meeting Start: 7:03pm

*Location: Emergency Management BC
(Surrey PReOC)*

Announcements

President Stan Williams VA7NF welcomed everyone to the first meeting of the new year.

Committee Reports

Christmas Dinner

Stan asked for comments regarding the 2018 Christmas Party. Since all feedback was positive it was agreed we should book Guildford Golf and Country Club again next year. Jinty VA7JMR reported that she has reserved it for Saturday Dec 7, 2019 and arranged for payment in advance.

Health and Welfare

Dennis Jackson VE7DGJ and VA7BI, a member of both the White Rock and Surrey Clubs, passed away before Christmas and will be missed.

Financial Report

A financial report was provided by Treasurer, Scott VE7HA, who confirmed that both the gaming grant and the Surrey Community grant have been received. A refund was made to the member who paid annual dues twice.

OTC

John VA7XB reported the results of a recent maintenance day at the OTC. A

big thank you is extended Robert Fishwick's friend, David Scoular VE7MON, who welded up the split damage on the yellow tower. Michael VE7GMP also helped with the tower repairs and was able to plug the top of the legs in order to prevent rain from entering. A new wire antenna has also been installed. Les VA7OM is working on the high power triplexer project.

John would like to call a meeting of the OTC committee on Jan 27th or Feb 3rd. An email will be sent out shortly to gauge availability for these dates. In reply to Anton's question John replied that guy ropes for the yellow tower had been attached to the existing barrier blocks on two sides, and a new concrete block poured on the third side.

Jeremy VE7TMY reported that a wireless doorbell was purchased to allow those needing access to alert persons in the radio room. It has yet to be installed.

Public Service Group

Don Hamilton VA7GL suggested some public service events during the year and asked for volunteers to be on the committee. He passed around a signup sheet for the Public Service Special Interest Group.

Contesting

John VA7XB noted that numerous contests are available at this time of year. SARC had a good turnout for the RAC Winter contest in late December. Last weekend Anton VE7SSD and Sheldon VA7XH participated in the ARRL RTTY Roundup using FT8 and RTTY.

Anyone else wanting to participate in a contest should contact a Director for access to the OTC.

Upcoming contests include: North American QSO Party CW this coming weekend and Jan 19 North American QSO Party SSB. The following weekend Feb 2-3 is the BC QSO Party. Sheldon VA7XH noted that the AM Rally Feb 2-4 is also very popular.

Auction

Sheldon VA7XH encouraged members to view/bid the auction items on a regular basis.

Membership

John VA7XB reported that we have 134 members, of which about 100 are paid up, with the balance gratis ham class students, including 11 registered for the current class.

Communicator

John VE7TI stated that we had the best month ever for the Communicator downloads, around 1200 so far. We have received several great compliments about the Communicator from readers on all continents except Antarctica. The blog site will probably hit 3000 viewers this month as the numbers keep growing. Our Twitter site has been viewed more often this last month as well. A video of Stan calling "CQ RAC contest" on 2m was uploaded and has received many views.

New Business

Field Day

Jason VA7ITJ has volunteered to be FD Coordinator. His background is in project management so we look forward to his leadership. A signup sheet for the FD committee was passed around and participants can expect an invitation to the first committee meeting very soon.

SARC Name Change

Stan VA7NF advised that bylaw changes will be in effect soon to reflect our new name, then it will be official.

Jeremy VE7TMY noted that the website has been updated - if anyone finds the word

"club" or typos on the new name please let him know.

Presentation

After a short coffee break, an Introduction to the Arduino was presented by Kevin McQuiggin VE7ZD.

The meeting was adjourned at 9:05pm



Kevin VE7ZD's presentation was well-received and there was a commitment for a future workshop for those wanting more information. The slide presentation is available on our blog at: <https://ve7sar.blogspot.com/2019/01/the-arduino.html>

February 2019

Operations & Training Centre News

John Brodie VA7XB

More Amplifier Issues



As reported elsewhere in this edition of the Communicator, our OTC equipment got a good workout this past month with several CW, RTTY and SSB contests in which about 10 SARC members participated.

Unfortunately, the linear amplifier continues to give us problems. As first observed and recorded by Sheldon VA7XH, the amp has apparently been overheating as a result of incorrect temperature sensing, firmware/software issues or some combination thereof. The symptoms are erroneous temperature readings of the final amplifier, leading to failure of the cooling fan to deploy when needed, hence over-heating. Some operators have observed that the displayed temperature seems correct during their event, so we may have an intermittent problem. Quite possibly this is related to the original failure which resulted in a burned-out tank coil. We are following up with the Expert Linears distributor in Texas to determine further action.

We have had several opportunities to compare the performance of our newly installed 40m inverted vee with the multi-band OCF dipole. The vee consistently produces a lower signal to noise ratio, with signals generally 6 dB lower than the OCF dipole, so it is a disappointment in that regard. Further consideration will be given to how its performance might be improved or a new horizontal dipole erected in a better

location. Another alternative is to supplement our triplexer-bandpass filter project (see following paragraphs) with the addition of a 40-80 diplexer which will allow use the OCF dipole for both 80 and 40m simultaneously.

Les VA7OM and John VA7XB have been working together to acquire the components for construction of high power 10-15-20 m triplexer and 10 - 80 m bandpass filters. Pavel VA6AM has kindly shared with us his know-how, custom schematics and construction details for these devices and is also assisting with purchase of hard-to-find items including high voltage capacitors. Metal boxes, coax connectors, toroidal cores and wire are now on hand to get this project underway, once we receive the outstanding items. The OTC committee is considering adding an 80-40 diplexer to the project list in light of the 40m vee's poor performance.

We will likely need to set up a workshop area in one of the less-used rooms of our leased space to allow construction and assembly of the triplexers and bandpass filters. Help from members will be needed for at least some of this project work. Some surplus test gear from estate dispositions and donations will be put to use to supplement our ability to diagnose, repair and assemble electronic projects. The Public Service group is also reviewing its needs in order to get their program underway and coordinated with other priorities.

~ 73, John VA7XB



The Contest Contender

John Brodie VA7XB

CQ Contest



It's been a busy contest month for VE7SAR. Aside from the RTTY Roundup in which Anton VE7SSD and Sheldon VA7XNL participated using their own callsign, we managed 2 other contests: the NA QSO Party CW version and NA QSO Party SSB version.

Unofficial results reported on the On-Line Contest Server for the NA QSO Party CW on Saturday Jan. 12-13 as shown below placed us 4th in all categories. We entered as M-2, which means multi operator, two radios, low power. On the VE7SAR team were: Jan VA7VJ, Stan VA7NF, Les VE7OM, Slawa VE7LWW and John VA7XB who together managed 930 contacts for 162,000 points. Note that other competitors made good use of 160m which is not currently available to us.

Participants in the NA QSO Party (SSB) on January 19 were: John VE7TI, Sheldon VA7XH, Robert VA7FMR, Michael VE7GMP, and Anton VE7SSD. Station management was provided by Stan VA7NF and John VA7XB. Flex 6600 operators used the voice keyer and wav files for the first time on this radio. Unofficial results from the Contest Server are show below:

What is coming up in February?

2-3 Feb BC QSO Party (all modes)

9-10 Feb CQ WW WPX (RTTY)

16-17 Feb ARRL International DX (CW)

23-24 Feb NA QSO Party (RTTY)

plus many others which you can check out at:

<https://www.contestcalendar.com/contestcal.html>

~ John VA7XB



Rank	Call	Score	Total	QSO					
				160	80	40	20	15	10
1	W2FU	599400	2220	407	720	574	386	128	5
2	NR4M	351804	1543	281	512	434	188	128	
3	N3QE	263299	1049	207	366	220	196	52	8
4	VE7SAR	161820	930		189	163	377	201	
5	AB9YC	61353	401		113	190	78	20	
6	VE7FO	17372	172		55	47	68	2	
7	W3RGA	6708	129		82	47			

February 2019



One Ham's View

Kevin McQuiggin VE7ZD

Return To Ham Radio

Like many hams, I got licensed at a young age and was active through my later school and early adulthood years, but amateur radio then faded into the background as the responsibilities of life, family and career took precedence. I was licensed as VE7CPT in 1977, at the age of 17, and over the next five to ten years “dove in”: I got my “Advanced” license, designed and built equipment, became a DXer and half-serious contester, explored packet and satellite communications, and even got onto 2m EME - still the “coolest” thing I have done in amateur radio!

During this period of time, I also graduated university, got my first “real job”, got married, started an interesting career in the Vancouver Police Department, got divorced, eventually re-married, and began assuming significant supervisory and managerial responsibilities at work. I also went to graduate school, completed three years of research and a thesis, and contributed to an advanced 56 Kbps wireless networking project.

I became VE7ZD in the late 1980s after meeting the ten-year advanced license requirement and spending three years on the “two letter suffix” waiting list. Such were the regulations in those days!

For me, like many others, amateur radio operation had to “take a back seat” to the responsibilities of life, and twenty years flew by before I realized it. During this period, while I maintained my station, towers, and qualifications, I

operated rarely, maybe once a year. Probably ten years went by without me making a contact on HF.

My interest in radio and communications technology, and my love of amateur radio never died, though, and I always knew that one day I would return to the fold and become active again.

I finished my policing career in 2011, and after about seven years of being involved in other professional pursuits, I made the decision to return to the ham world earlier this year.

This story is about my observations after returning to the hobby after a long absence.

How has amateur radio changed? In summary, the “ham radio” I see today is closely aligned with the hobby I left. The people and enthusiasm are the same, and the debates are similar, but the context has changed significantly due to the immense impact that new technology, both analog and digital, has made upon radio and communication systems.

One difference I have observed is the wide variety of complex gear that is now available to the average ham at an affordable price. Devices like handheld antenna analyzers can now be bought for a couple of hundred dollars. The capabilities and performance of these devices far exceeds that of devices that were unheard of in the amateur community, and that cost in excess of \$100,000.

Field Day... Kevin built a 'lemon' battery and made some natural power contacts



The development of new digital modes such as PSK31 in the 1990s, and most recently FT8 and its related weak-signal modes have greatly improved the effectiveness of ham communication. While there are detractors, more communication ability is always better than less, and it is notable that FT8 has come along just at the right time: at the bottom of one of the worst solar cycles in recent memory. Oh, for the summer of 1979 - global communication with 5 watts SSB on 10 metres, almost 24/7!

Incidentally, new modes in amateur radio are always accompanied by negativity from the established amateur community. This will pass, as did negativity about SSB from the "AM" crowd in the 1950s. In fact, this skepticism is one of the aspects of amateur radio which has not changed in my absence.

The advent of DSP and software-defined radios is also a major development over the past 20 years. Like most other new technologies, initial skepticism gave way to utility, and the SDR has found its way into just about every ham shack. The thought that you would be able to buy a receiver for under \$10 that runs on 5 volts and covers 10 MHz through 2 or 3 GHz would have been laughable in the 1980s.

Innovation within amateur radio has persisted, and I see many projects that build on (especially) SDR and other new technologies to produce great new modes and communication capabilities.

One thing I do note, however, is that the percentage of electronic experimenters within ham ranks seems to have dropped. There are fewer amateurs building their own gear, and more "buyers" who simply acquire products and deploy them. Innovators are fewer than they were before.

This may be understandable, as these new technologies are quite complex compared to the earlier amateur era, and more technical background is necessary for an individual to innovate, i.e. to invent new modes or techniques.

I think that one reason for this is that amateur licensing standards have failed to keep pace with the development of new technologies. This is the case in Canada, the US, and in other nations as well. The licensing standards have taken modest strides towards inclusion of material covering DSP and SDR, for example, but not in enough depth to provide individual amateurs with enough technical background to invent or innovate, as they were able to in the past.

It is a difficult problem, and I am not advocating an increase in complexity or difficulty of amateur licensing! Amateur radio plays many roles: emergency communications; public service; a reserve of technical talent; - finding the right balance is what is important.

Hams are not, nor should they be expected to be, electrical engineers, but licensing standards should always reflect the technologies in use. Compared to twenty years ago, I think that some aspects of the standards should be revised to better reflect use of current technologies within the hobby.

I think that the average ham today is much more aware of the important role amateur radio can play in public service and



Kevin's 'other' career... commercial airline pilot

February 2019



Most of these technical questions on “maker” groups were answered about a century ago by experimenters within the amateur radio community.

emergency response than was the case a couple of decades ago. Public service and emergency communications has been part of amateur radio’s focus going back to the 1930s at least, but I have noted much more emphasis on this role since my return to the fold. Public service and emergency communications plays a more prominent role in clubs, and even in popular magazines like QST.

Society’s dependence on telecommunications for day to day life is much greater than in previous decades, and hence the impact of a disaster, for example, could be much greater. Amateur radio’s stronger focus on public service is good, because (as we all know), commercial infrastructure usually fails in a disaster despite the “best laid plans” of the major telecom providers. Amateur radio will be able to help as it does not depend (as much) on this infrastructure.

Back to more specific observations.

Use of repeaters seems, for some reason, to have declined. I hear a few VHF/UHF nets during the day and in the evening, but the idea of a repeater as a “watering hole” is no more. One used to be able to find other hams 24/7 on local repeaters. The repeaters still exist, but it just seems that hardly anyone is using them. Perhaps the rise of smartphones, or the ban on use of handhelds while driving is responsible, but I think that the sense of “community” that was enabled through heavy usage of local repeaters has been eroded.

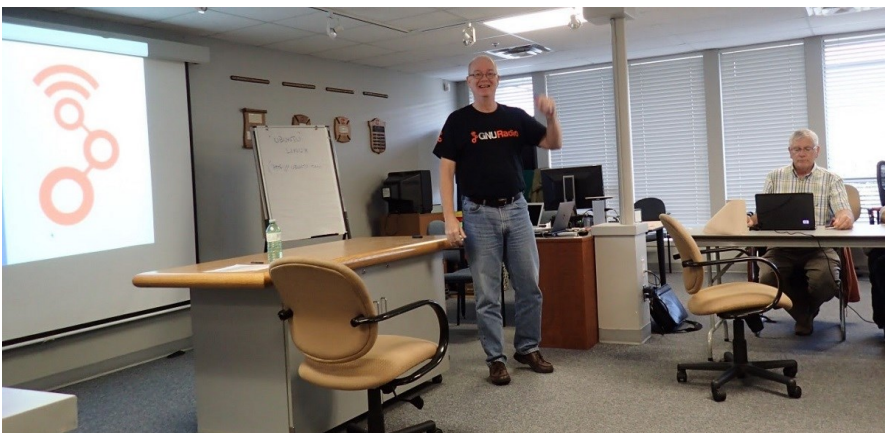
Fewer hams are active on HF, it seems, and those who are newly licensed are less inclined to want to upgrade themselves and their stations to utilize HF. This is a shame, in my opinion, as the challenge and fun of HF communications, and in making contacts (and possibly friends) across the world is something that is personally satisfying.

I understand the counter-argument - “what’s the point of putting together an expensive HF station for unreliable communications when I can just email or group chat internationally over the Internet at no cost?” - but this argument is weak in the context of amateur radio’s role in emergency communications and disaster response. I think we need to emphasize amateur radio as “unmediated direct communication without reliance on commercial infrastructure”, and that this aspect might elicit more interest in HF amongst new (and younger) hams.

Younger hams: this is an important observation. I believe that amateur radio has largely lost its innovative “spark” to the “maker movement”. In the 21st century, young “makers” exploit technology to undertake all manner of interesting tinkering and research, and the movement has been the source of many technological innovations.

When you read QST from the 1920s and 1930s, this innovative spirit was the purview of young hams. Radio was fairly new and represented the bleeding edge of a lot of industry and government research. Radios and antennas were (relatively) affordable to build and maintain. Young people got involved and their tinkering led, in many cases, in the discovery and development of new technologies.

Computing hardware and software has become the area of current industrial innovation, and naturally many young people today have been drawn to this interesting field. They are experimenting and creating, just as young hams in the 1930s did. The proliferation of cheap computing devices such as the Arduino and the Raspberry Pi, global networking,



Kevin presents a SARC-SEPAR workshop on GnuRadio

and open source software support affordable experimentation, and one can see the appeal of “making” to young people.

What I find ironic is that many in the “maker” community are now interested in wireless devices and applications but have no experience with or understanding of radio science or technology. There are almost endless discussions on “maker” forums and mailing lists about antennas, radio propagation, and the like, and most of the information being spread is totally incorrect.

Makers are fumbling about and trying to re-invent the wheel in regard to wireless communications. Most of these technical questions on “maker” groups were answered about a century ago by experimenters within the amateur radio community.

I think that our amateur radio organizations, both in Canada and the US, missed (or are missing) a great opportunity to contribute to innovation and to technological literacy in general. Our partnership (or even leadership) in the “maker” community would support

amateur radio and help spread our skills to a younger generation. In return, we would learn much ourselves.

Why the missed opportunity? Every organization (and even radio clubs and individuals) tends psychologically, and unconsciously, towards a parochial position and can feel threatened, or at least uncomfortable, when others want to use “technology invented here”. We have to maintain self-awareness and see the bigger picture. “Makers” would make great amateur radio operators.

I’ll stop here for now, but summarize my observations by saying that I’m enthused to be back, the amateur community is alive and well, and the hobby still presents great opportunity for fun, learning and public service to all those who get involved. In that sense, amateur radio is unchanged from twenty years ago. See you at the club and on the air!

~ Kevin VE7ZD

Field Day 2019

Jason Biggin VA7ITJ

SARC and SEPAR Members,

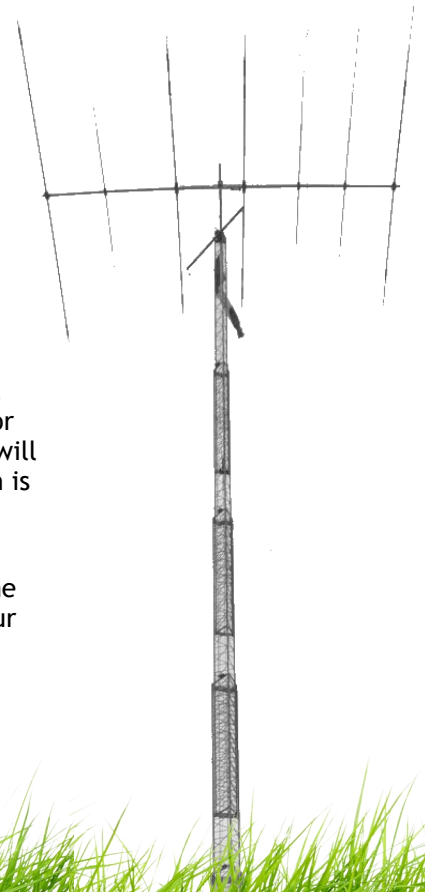
We have started planning for Field Day 2019. An initial meeting was held, and we identified the following primary goals for this year’s event: contesting, member involvement and emergency operations. Secondary objectives include municipal recognition, mentoring and recruitment. To proceed with these initiatives, we need your help. Please take a moment to complete this survey.

<https://www.surveymonkey.com/r/Y5Y9SS7>

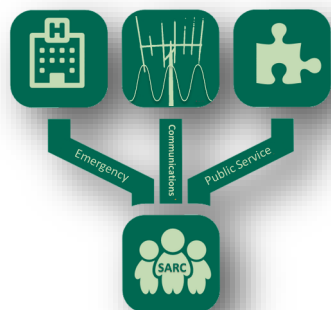
This information will determine where and how we will host this year’s event. The basic choices are to use the OTC or deploy in the field. Setup in the field will require significantly more effort which is feasible as long as there is sufficient support.

Our next meeting is February 6th at the OTC and results will be discussed at our next general meeting.

~Jason VA7ITJ



February 2019



Public Service

Amateur Radio Serving The City Of Surrey

Public Service Principles



Public Service Report

Don Hamilton VA7GL

We have lift off! The SAR-Communications Special interest group is getting ready to find new challenges and assist Surrey and the larger community by the use of SAR-Communication member's skills and knowledge of their radio equipment.

Just to recap, "Public Service" is now defined as to include the whole community social and emergency events, encompassing most any event that allow hams to really use our equipment, skills and knowledge to be a benefit to our community. So if you have an interest in Parades, off road events, bike-a-thons, parks on the air, SOTA, service club events, we need to join to make the endeavor a success. The main goal is use our radio knowledge, have fun and participate in these community events.

We started a signup sheet at our last meeting. Those who have signed in for the Public Service Special interest group, will have received a email confirming their membership. If you haven't received the confirmation email, please email me at ve7gl@telus.net If you would like to get on the list just email me to receive a welcoming text. If you didn't receive a text, please email me.

What's the Next Steps? We are requesting space in the OTC that is dedicated to Public Service. Discussing the project with several SARC executive members, we have

quite a bit of very useful space and equipment, that we can put to very good use. Therefore, we have requested a portion of the gaming grant money to be allotted to the Public Service Group (PSG) At the next regular meeting we should be able to outline some new training and program suggestions.

A fun project could be the TNC Arduino as John VE7TI described in the last Communicator, maybe we could purchase some supplies to start building the project, for the SIG members, so that we can get our members on the air ASAP digitally. Please let me know your thoughts on the TNC idea.

The goal is still to have the space useable sometime in February. Next, we should begin to test our 2 meter and 70 cm FM communication coverage. Then we can see what we've got to work on next. Hopefully we will be able to check into some of the emergency program nets from the OTC facilities.

The older ways are giving way to new and different challenges as we move steadily toward the bottom of the sunspot cycle. Hams are making very substantial changes in equipment and the way we operate. Don't you think its time for a new era in ham radio, tradition HF is moving into FT8 and its subsets. Software Defined Radio is here and instant communications are the norm.

To paraphrase a marketing slogan, let go out and do something, My suggestion is let's get ready to find a challenge and use our skills and knowledge to solve it.

~ Don VA7GL



SEPAR Report

Gord Kirk VA7GK

In early, January Roger Andrews VA7VH contacted me to let me know that he needed to step back for a time from his duties as SEPAR Coordinator. I did agree to step into this role and ensure the good work of SEPAR continues. Roger will still be active as his time allows, supporting me in my new role and SEPARS as we move ahead. You may still get email from him and will definitely hear him on the Tuesday night nets. Roger is also continuing to oversee the Competition begun last April. Net controllers will continue to send in the logs to Roger and someone will win a new radio as a result of their participation in the various SEPAR events.

As I have begun to transition the various activities Roger looked after I am just beginning to understand how big a role this is and how much time it takes. I would like to thank Roger personally, and on behalf of SEPARS, for his work and time investment in the program.

In order to have the time to look at the SEPAR Society and its future role I have created a short term list of items to manage so we ensure the readiness of SEPAR members to provide communications support to the City of Surrey, through the Emergency program, under the direction of Surrey Fire Service. The SEPARS Executive has met together and discussed the following:

1. Weekly Net continuance: SEPARS will continue with the current Net Controller schedule.
2. Weekly email: We will continue with a short weekly email reminder of upcoming events and emergency preparedness tips.
3. Training: Plans to have a training time reviewing the Grab and GO kit operation, as well as an inventory of maintenance for these kits will be planned. As the Digital Kits are designed, training to effectively operate these will also be developed.
4. Digital VHF/UHF comms kits for individuals: SEPARS and SARC have been discussing the potential to build small inexpensive Digital Kits to help build the capabilities for each SEPARS/SARC member to have digital communications available in their own home (or in their personal grab and go kit)

Name	Frequency	Offset	CTCSS
VE7RSC (Primary Repeater)	147.360	+0.600	110.9
VE7RSC (Secondary Repeater)	443.775	+5.0	110.9
VE7RPT (Primary Regional Repeater)	146.940	-0.600	
Optional	136.5	Rcve	
Simplex 1	(VHF)	146.550	
Simplex 2	(VHF)	147.420	
Simplex 3	(UHF)	446.550	
Simplex 4	(UHF)	447.425	

Other frequencies in the Greater Vancouver area:

Primary: Coquitlam/Abbotsford	146.430
Primary: Inter-Municipal Group 3	146.445
Primary: Vancouver; Mission; Sec. Coquitlam	146.460
Primary: Kent-Mission; Sec. Richmond	146.475
Primary: Inter-Municipal Group 2	146.490
Primary: New West; Sec. Richmond	146.505
National Calling / FM Simplex Group I	146.520
Primary: North Shore; Port Coquitlam	146.535
Primary: Bowen Island; Surrey	146.550
Intermunicipal Group 1 Coordination	146.565
Primary: Lions Bay/Vancouver/Delta/Langley	146.580
Primary: Port Moody; Sec. Burnaby	146.595
Secondary: Vancouver/Surrey	147.420
Secondary: Vancouver (UBC) / Maple Ridge	147.450
Primary: White Rock/Chilliwack; Sec. No. Shore	147.480
Secondary: Burnaby/Pitt Meadows	147.510
Primary: Delta; Sec. Abbotsford	147.540
Primary: Hope; Sec. Delta; ALSO EMBC	147.570



Surrey Emergency Program Amateur Radio

February 2019



If you are not now a member, we'd love to have you on-board. Contact me at the link above.

5. Update the SEPARS Radio boxes in the RCMP Community Police Stations: We will gather and maintain these small kits, checking the batteries and ensuring that programming is working and up-to-date.
6. Work on a plan re SEPARS future: Discussions with SARC and the Public Service committee will continue to develop a plan which supports the needs and requirements of the SEPAR Program.

As the SEPAR Coordinator I met with Surrey Fire and they are looking forward to a continued relationship and are encouraging us to continue to grow and develop our abilities to support the needs of our community.

SEPAR Annual Competition

As of last April, we started a competition that active SEPAR members can participate in. The most active member will win an MD390 DMR Radio package. You can checkout pictures of the radio and see the rules on <http://va7.ca/radio> (an interim website).

If you are not now a member, we'd love to have you on-board. Contact me at the link above.

Weekly Nets

Every Tuesday evening at 1930 hrs (7:30pm PDT) we start a ½ hour Net on the local repeater provided by Surrey Amateur Radio Communications (SARC) on 147.360 MHz +600kHz, and a tone of 110.9 Hz. There may be a simplex test or a test NTS message transmitted during the Net at the control operator's discretion. This is an excellent opportunity to practice sending and receiving this form of messaging. Besides, it adds a little variety to the regular check-ins on the net.

Please join us. NTS Radiograms can be found on the SEPAR website, or, if you would like a fillable PDF, you can find that too.

Thursday nights at 19:30 hours, the Net has changed! We are no longer doing a regular 2 meter simplex Net on this night. Any plans for Thursday night will be announced on the Tuesday before. This night will now be used for optional tests. For example NTS Digital exchanges, 6 meter, 2 meter, 70 cm and 220 Nets. If someone wants to do a particular net on a Thursday, then please announce it on the Tuesday before.

~ Gord VA7GK
SEPAR Coordinator

A Postscript...

Hello,

This is by far the best "newsletter" I have ever seen - more properly described as a magazine! The content is excellent, the presentation magnificent, and really is the standard by which all other newsletters should be judged. Well done!!!

Please, please add me to your subscriber list. I am headed over to your PayPal account now to donate for this fine publication.

I belong to, and am currently President of, the OH-KY-IN Amateur Radio Society. As good as our newsletter is, and grateful for all the work done by our Editor, I am almost afraid to show him this publication so as to not hurt his feelings! Again, very well done. You are a credit to the hobby and your readers are blessed to have someone as skillful and dedicated to quality as you.

Cheers!

Robert Gulley AK3Q
President OH-KY-IN ARS



Swap Meet

The 2019 BARC Annual Swap Meet is Sunday, March 03 at the Queensborough Community Centre in New Westminster from 10:00am until 1:00pm. (more info)

General Admission: \$6 (children 12 and under are free)

Vendor Tables: \$25 each (includes one person). If you are sharing a table, add \$6.00 per additional person. We require the names and call signs of all vendors for our records.

To reserve a Vendor Table please contact Lou, VE7CGE at loucge@telus.net or Phone: 604-291-1569

Do you have what it takes to be TOP BULB?

Announcing the 2019 Lightbulb QSO Party

March 9th, 2019 20:00 UTC through March 10th, 2019 20:00 UTC

That's right! A QSO party where the participants transmit and receive signals on CW, Phone, and digital modes using an antenna where a lightbulb is the main radiating element. TOP BULB honors will be awarded to participants in 5 categories of operation.

We've all heard the stories... Joe Elmer was so good at antenna matching that he made a 100 mile 20M QSO on an ordinary 100 watt household lightbulb. So here is your chance to try it out. Go traditional and compete with just a lightbulb dummy load. Or, get creative and invent an antenna design that uses the lightbulb as a key component that makes your antenna work. Five categories of competition give you different paths to gaining bragging rights as TOP BULB in the 2019 Lightbulb QSO contest.

Categories of the competition are:

1. Household - an antenna constructed of any lightbulb available for purchase in normal home use applications.
2. Commercial/Industrial - an antenna constructed of any lightbulb available for purchase in commercial and/or industrial applications.
3. Homebrew - an antenna constructed of any home made light bulb that radiates visible light when power is applied.

4. Dummy Load - any lightbulb that normally serves as a dummy load (see miscellaneous rules). Please note that the administrators do not recommend this category of operation because it puts both the operator and RF sensitive equipment in close proximity to the load. However, several, lightbulb purists wanted the category so here it is for entry at your own risk.
5. Freestyle - anything goes. Get creative and string all of your Christmas lights together, what ever you want and as many lightbulbs as you want. Bring down the power grid if you must.. we just don't care, but certainly want to reward extreme creativity.



The Objective of the Lightbulb QSO contest is to build and use an antenna constructed in a manner so that the lightbulb is a key component of the antenna and to promote understanding and practical application of antenna matching concepts that allow a lightbulb to be used as a radiator in two way radio communications.

For additional information on how a lightbulb antenna works, click this link:

<https://hamsignal.com/blog/light-bulb-antenna-basics-and-faq>

For additional information on the contest:

<https://hamsignal.com/blog/the-lightbulb-qso-party>

February 2019



KB6NU's Column

Dan Romanchik, KB6NU

Amateur Radio (illegally) Aiding Yacht Racers

The Golden Globe Race (<https://goldenglobetrace.com>), a 30,000 mile, non-stop solo yacht race to celebrate Sir Robin Knox-Johnston's historic 1968/9 world first solo non-stop circumnavigation. There are 18 sailors in the race, which started on July 1, 2018 from Les Sables-D'Olonne, France.

Amateur radio is at the heart of the latest controversy surrounding the race. Scuttlebutt Sailing News reported (<https://www.sailingscuttlebutt.com/2019/01/21/maintaining-information-barrier/>) on January 21, 2019 (day 205 of the race):

"Sailors have been making use of the Amateur Radio net (ham radio) for decades, and while National telecommunication authorities have often turned a deaf ear to unlicensed operators using made-up call signs while at sea, warnings from a National regulator to Golden Globe Race skippers has created intrigue into an exciting finale for race leaders.

"Modern navigation and routing tools are restricted from use in the 2018-19 contest, limiting GGR skippers to the type of equipment available for the inaugural Sunday Times Golden Globe solo non-stop round the world race in 1968-69. That includes Amateur Radio.

"The skippers have been using this free communication system to gain weather forecasts and maintain contact with their teams, which is allowed under the Race Rules. However, it is the responsibility of each skipper to ensure that they abide by National and International regulations which Jean-Luc Van Den Heede and Mark Slats, in first and second in the race, have not been doing. [[Neither Van den Heede or Slats have valid amateur radio licenses...Dan]]

"Said the warning, 'You use an amateur callsign and are making connections with amateur radio operators. The call sign letters are not registered, and thus illegal. I ask you to stop. If you have a legal amateur callsign then I urge you to present it.'"

As a result of this warning, Slats is considering dropping out of the race, even though the race is nearly complete. Yachting Monthly reports (<https://www.yachtingmonthly.com/boat-events/golden-globe-race/golden-globe-race-slats-considers-quitting-comms-row-68574>):

"Mark Slats, who is less than 50 miles from Golden Globe Race leader Jean-Luc Van Den Heede, has announced he is thinking about retiring from the race after being banned from broadcasting on the Ham Radio Net.

"Race organisers said the Dutch skipper does not have the required licence, and has been warned by the Dutch authorities to stop broadcasting, which has left him unable to communicate with his shore team.

"Under the rules of the race, all of the entrants are able to use this free communication system to gain weather forecasts and maintain contact with their teams, but, it is the responsibility of each skipper to ensure that they abide by national and international regulations."

It's not only the yachters that are flouting the rules, it's the amateur radio operators who are communicating with them. According to Yachting Monthly, OFCOM, the UK regulator issued the following warning:

"Fair warning both to unregistered GGR skippers and to legitimate Ham radio operators communicating with them. In Britain, the Ham Radio net is controlled by

OFCOM, which recently revoked more than 500 licences for non-compliance. This includes communicating with unregistered Ham radio operators. The maximum penalty is 6 months in prison, a £5,000 fine and loss of their licence.”

This is a fascinating story, and I wish that I’d found out about this sooner. It would be interesting to listen in on some of these communications. One question I have is why these guys failed to obtain a valid amateur radio license? The Golden Globe Radio website notes, “[The race] will be sailed under the auspices of the Royal Nomuka Yacht Club in the Kingdom of Tonga. His Royal Highness, Crown Prince Tupouto’a Ulukalala is Patron of the Race.” They probably could have issued valid amateur radio licenses to all the racers.

If any of you have heard the communications or know any more about the technical details, I’d love to hear from you.

~ Dan KB6NU

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When he's not trying to figure out which way current flows, Dan blogs about amateur radio at KB6NU.com, teaches ham radio classes, and operates CW on the HF bands. Look for him on 30m, 40m, and 80m. You can email him at cwgeek@kb6nu.com.

New and Improved GridMaster Map

Since March 2018, the original 488-Grid Square Map has been a popular way for amateur radio satellite and FT8 operators to keep track of grid squares they have worked/confirmed. And, while I have seen many variations, the one that caught my attention and now use for my own personal record keeping, is the modifications made by K7TAB. This is a sophisticated, semi-automated, GridMaster tracking tool.

GridMaster

The new GridMaster Map, courtesy of K7TAB, contains 4 worksheets:

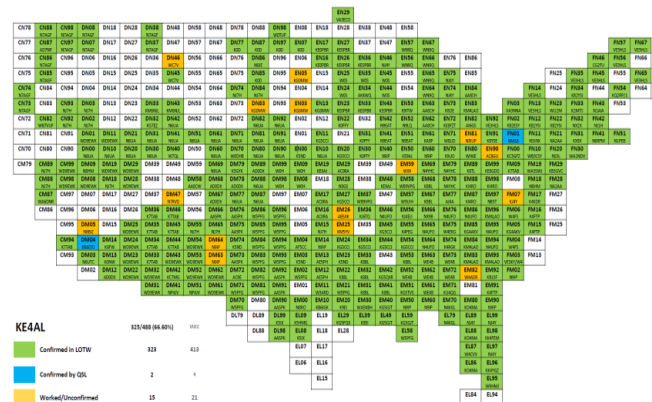
US Gridmaster: This is the automated reporting work. This worksheet captures inputs from the other worksheets and displays them appropriately on the

GridMaster Map. In addition to color coded grid squares and station worked, the legend tabulates totals by type for chasing the GridMaster Award, as well as VUCC. This worksheet is protected.

Confirmed in LOTW: This worksheet is where you record your LOTW confirmed grids. Simply follow the instructions provided to copy and paste confirmed grids from your LOTW account.

Confirmed by QSL: This worksheet is where you record your grids confirmed by QSL card.

Worked Unconfirmed: This worksheet is where you record grids you have worked, but yet to confirm.



Note - There are hidden features within the Excel workbook that will safeguard against duplicate reporting. As an example, grid CM94 is recorded in as both confirmed by LOTW and QSL; however the map only reports the LOTW confirmation.

Two additional features are available, the first is a “Sked” tab to post upcoming rover announcements for grids you need, which will post the rover’s call sign in the grid on the GridMaster Map. Second is the “Roved” tab, which will highlight grids you have activated in red. The “US Gridmaster” tab is protected. The password is amsat.

Nothing proprietary here, so feel free to use it as you would like. The author’s wish is that it helps you as much as it helps him. Download it here:

https://ke4al.files.wordpress.com/2018/06/gridmaster_map_mod.xlsx

February 2019



A First-Hand Look

John Schouten VE7TI

My FT8 Experience

A spotless sun

So what do you do when you turn on your new HF radio and you hear little or no activity on the bands? I was faced with that in December, not once but several times.

We are currently very near the bottom of the 11-year rotation and in Solar cycle number 24. The solar monitoring sites report: "Solar Cycle 24 is the 24th solar cycle since 1755, when extensive recording of solar sunspot activity began. It is the current solar cycle, and began in December 2008. Activity was minimal until early 2010. It reached its maximum in April 2014 with a smoothed sunspot number of only 81.8, the lowest since the Dalton Minimum (early 1800s). Reversed polarity polar active sunspot regions in December 2016, April 2018, and November 2018 indicate that a transitional phase to solar cycle 25 is in process."

Nowadays, few if any sunspots show up on the Sun, and the HF bands are rarely good. Sunspots are associated with increased solar ultraviolet (UV) radiation. UV acting on the ionosphere is what makes radio propagation exciting on the HF bands, especially the upper bands.

Scientists say that it will be a while until we see positive changes. Even the last solar cycle was not great for HF at its peak and that phenomenon may repeat. Time for an assessment of HF activity at this station.

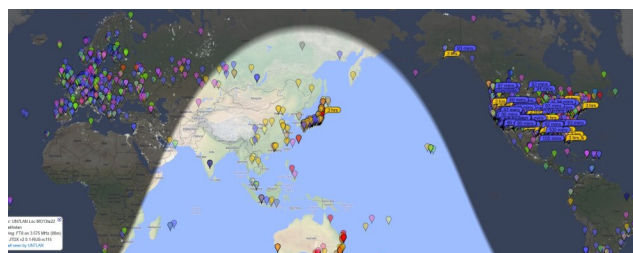
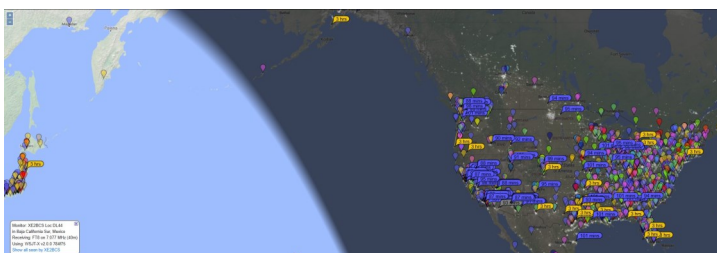
I had heard and read about FT8 (available for Windows, Mac and Linux). I had even installed it months ago but didn't really get it working to my satisfaction. My new iCom 7300 and some encouragement from Kevin VE7ZD prompted me to give it another try.

It took some reading and experimentation but the 7300 was a dream to configure. You can even save all the mode settings on the built-in SD card. I discovered this after I had changed all my N1MM contest setting while installing FT8, only to find I couldn't get N1MM working again afterwards. Now I have saved settings for FT8, N1MM, and Ham Radio Deluxe and it takes only moments and a power on/off cycle of the radio to switch. Perfect!

See the article on page 31 for setup instructions and some screen shots—but once you have it figured out for your transceiver and you can successfully connect and transmit on the test screen, use the program's save settings feature.

I set the 7300 for 20 Watts and clicked the transmit button. The radio came alive, I saw stations scrolly by—including DX! Here we go I thought... Hmmm, no contacts.

I had been told that your computer clock must be accurate to within one second. If not, the alternate 15-second receive/transmit cycle cannot synchronize the timing with other stations. On the display I saw most stations were not within one second. More reading... I downloaded a small



windows program called NetTime [<http://timesynctool.com/>]. Its sole function is to keep your computer clock synchronized with the International Time Standard and it is much more accurate than the software built into a computer operating system.

I fired up FT8 again, and clicked the transmit button. One 15-second cycle passed. I could see and hear the digital tones being transmitted and my SWR looked good.

It took about 3 cycles of calling CQ before my call was answered by WA4MIT. Up popped a log window! The logging software is built into the program, it pre-fills all but the sent and received signal report and saves as a standard .ADI file... Nice! Easily imported into LOTW and my logbook of choice. First contact in the log and several more followed in short succession. Although some criticize the speed of the contact, typically 1-1.5 minutes each, I found that it allowed me to do other things, like work on this newsletter.

I now realize that the computer clock sync issue was the culprit that foiled my first attempt at FT8 plus some radio tweaks—especially using only USB in the USB-D (data) mode.

FT8 is available at dedicated frequencies across HF, VHF, UHF and higher. It is amazing to see that you can make DX contacts at very low power and when you cannot even see the signal on the waterfall.

Another bit of magic is seeing your signal report in distant lands. FT8 is a digital mode and as such it is logged by stations across the globe on PSK Reporter [right]. This website uses Google maps to display where in the world your call is heard, including your signal strength. I was amazed that with low power, I was not only being heard throughout North America, but also in Japan and much of South America.

There have been stories and allegations that FT8 will 'kill' ham radio. It is popular to blame new technology for

killing things. The Internet killed newspapers. Video killed the radio star. Is FT8, this new digital technology, poised to kill off ham radio? The community seems evenly divided.

In an Internet poll asking, "Is FT8 damaging amateur radio?" At this moment the response is 51% yes, 46% no and 3% undecided.

My opinion? It is another tool in the tool kit. I heard similar complaints when the CW requirement was removed as a condition of HF licensing. All I know is that it gives me an alternate mode to use even during weak [or no] signal conditions. I also use PSK and other digital modes... why not?

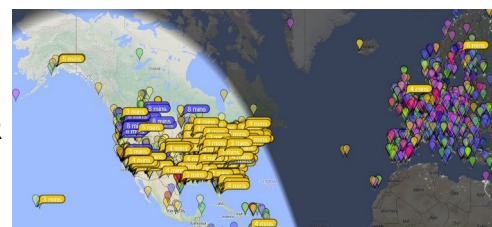
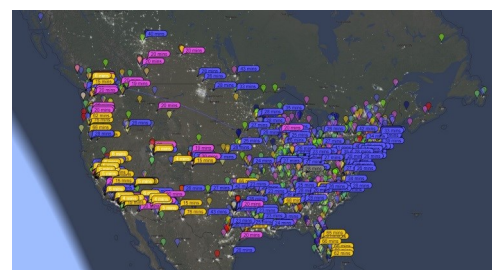
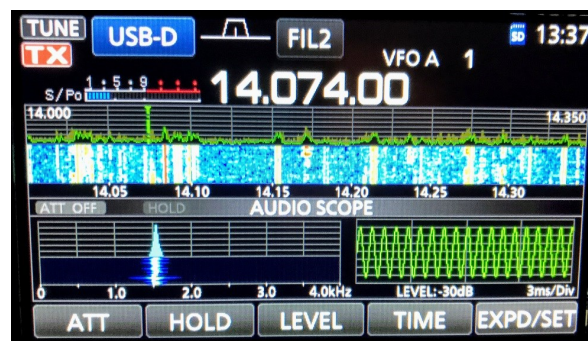
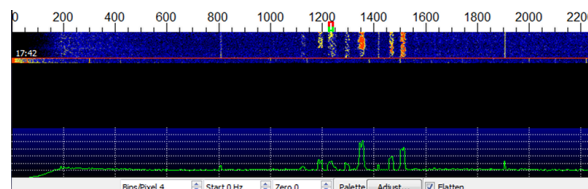
Both Onno Benschop VE6FLAB writing in his column 'Foundations of Amateur Radio' [see page 34] and Gerald K5SDR find that FT8 is good for the hobby. Gerald has a very good blog post at URL

<https://www.flexradio.com/ft8-tipping-point-for-ham-radio/> on the subject. I particularly like his bullet points that include:

- FT8 opens "dead bands"
- FT8 is addictive - see em, click em, work em... Boom!
- FT8 lets little pistols work DXCC like a big gun
- FT8 lets you work the world from small or deed restricted lots (with small antennas).

Any contact is a good contact! Can't argue with that... Works for me.

~ John VE7TI



See page 36 for details on add-on programs that makes FT8 such a great addition to your Amateur Radio activities.

February 2019



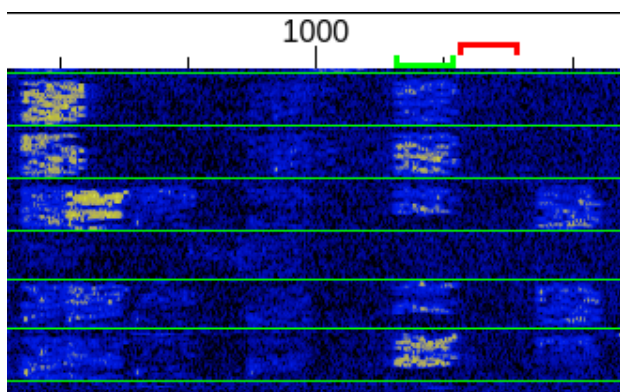
More On FT8

MOSPN

QRP FT8 Operating Tips

A few tips on making the most out of FT8, especially when operating QRP.

Listen on odds and evens *before* selecting a Transmit [TX] frequency. Just because you can't hear anyone on the receive cycle doesn't mean you're not colliding with other stations on the TX cycle. Once a clear space on the waterfall has been found, lock your TX frequency with the 'Hold Tx Freq' tick box. This is linked with the following step...



Don't call a station on their TX frequency; you'll be just one of many doing so. Call on the slot you found in step 2 above. All stations are decoded on RX regardless of frequency. This also enables you to tail-end a QSO without colliding with the 73 messages.

A waterfall plot showing TX on an adjacent free slot

If the receiving station can't hear you, repeat step 2 to find another free slot. Just because a slot is quiet for you does not mean it's quiet at the RX station.

When calling CQ periodically disable TX and instead listen on your TX slot - to be sure a more powerful station isn't clobbering you, and if so, repeat step 2.

FT8 Waterfall

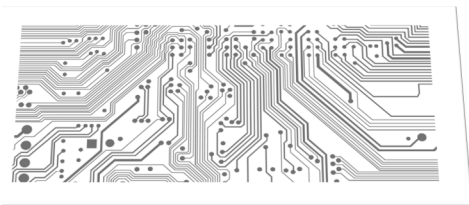
Finally, be aware of signal reports. I'm running -2W with a very inefficient antenna. Commonly my reports will be -8dB down compared to the report I send. Assuming a similar noise floor at both ends (typically around -24dB), I only have a small chance of working someone with a -16dB signal, dropping to near impossible at -18dB or below. However, if I *really* want that contact I'll hunt around the band in the hope of finding a spot quiet on the receive side. Occasionally this works.

~ MOSPN

FT8 Operating Guide

Check out this nifty operating guide to FT8 written by Gary Hinson ZL2IFB. It is by far the best guide for beginners and is frequently updated. http://www.g4ifb.com/FT8_Hinson_tips_for_HF_DXers.pdf

Gary has been compiling these "Hinson tips" since July 2017 in the course of making about 17,000 FT8 and FT8 QSOs on the HF bands and learning how to drive the software. Some tips were inspired by suggestions from other FT8 users and by the WSJT-X developers on the WSJT-X reflector (worth joining). Many address Frequently Asked Questions and draw on his 40-odd years of HF DXing. Gary writes that these are just tips, pragmatic suggestions aimed at making FT8 easier and more effective to use on the HF bands.



TECH TOPICS

A New Low Power Data Mode With Great Results

An Introduction To FT8

WSJT-X is a digital software program for amateur radio operators. If you already have the equipment to run PSK or RTTY, then you have all you need.

You can find the official WSJT-X documentation [HERE](#).

WSJT-X is a computer program designed to facilitate basic amateur radio communication using very weak signals. The first four letters in the program name stand for “Weak Signal communication by K1JT,” while the suffix “-X” indicates that WSJT-X started as an extended and experimental branch of the program WSJT.

The WSJT project was started in 2001. Since 2005 it has been an Open Source project. All code is licensed under the GNU Public License (GPL). Many users, too numerous to mention here individually, have contributed suggestions and advice that have greatly aided the development of WSJT and its sister programs.

Most of the color palettes for the WSJT-X waterfall were copied from the excellent, well documented, open-source program fldigi, by W1HKJ and friends.

FT8 is valid in Logbook of the World.

FT8 is designed for situations like multi-hop E_s where signals may be weak and fading, openings may be short, and you want fast completion of reliable, confirmable QSOs.

Important characteristics of FT8:

- T/R sequence length: 15 s
- Message length: 75 bits + 12-bit CRC
- FEC code: LDPC(174,87)
- Modulation: 8-FSK, keying rate = tone spacing = 5.86 Hz

- Waveform: Continuous phase, constant envelope
- Occupied bandwidth: 47 Hz
- Synchronization: three 7x7 Costas arrays (start, middle, end of Tx)
- Transmission duration: $79 \times 2048 / 12000 = 13.48$ s
- Decoding threshold: -20 dB (perhaps -24 dB with AP decoding, TBD)
- Operational behavior: similar to HF usage of JT9, JT65
- Multi-decoder: finds and decodes all FT8 signals in passband
- Auto-sequencing after manual start of QSO

Comparison with slow modes JT9, JT65, QRA64: FT8 is a few dB less sensitive but allows completion of QSOs four times faster. Bandwidth is greater than JT9, but about 1/4 of JT65A and less than 1/2 QRA64.

Comparison with fast modes JT9E-H: FT8 is significantly more sensitive, has much smaller bandwidth, uses the vertical waterfall, and offers multi-decoding over the full displayed passband.

Still to come, not yet implemented: The authors plan to implement signal subtraction, two-pass decoding, and use of “a priori” (already known) information as it accumulates during a QSO.

Three extra bits are available in the message payload, with uses yet to be defined. We have in mind special message formats that might be used in

February 2019

contests, and the like. Your considered suggestions for use of these bits are very welcome!

Suggestions for FT8 setup and examples of use can be found in a screen shot posted here: <http://physics.princeton.edu/pulsar/k1jt/ft8.png>

To help get things started, we suggest using the following frequencies:

Band	MHz
160	1.841
80	3.579
40	7.079
30	10.141
20	14.079
17	18.105
15	21.079
12	24.920
10	28.079
6	50.313
4	70.094

Most of these suggestions follow a simple guideline: add 3 kHz to the commonly used JT65 dial frequency. For 6 meters the authors suggest using 50.313, which should be consistent with band plans in all IARU Regions. (Six meter activity that's now on 50.276, world-wide, might be moved to 50.310.) They are very much open to suggestions for changes in the above table.

Extensive documentation is available at <http://physics.princeton.edu/pulsar/K1JT/wsjsx.html>

What You Need to Use WSJT-X

In order to use WSJT-X, an amateur radio operator (ham), or a short wave listener (SWL), needs the following:

1. A frequency stable radio and an antenna (the frequency range for both depends on the band);
2. a sound card interface in order to pass the received audio to a computer;

3. a copy of WSJT-X, available on their website (for Microsoft Windows, Linux or Macintosh);
4. an accurate computer clock.

The antenna depends on the band you wish to use, as well as how you would like to use WSJT-X. You may want to use 160 meters, which generally requires large wire antennas, or the microwave bands with a dish to bounce signals off the moon. WSJT-X is popular on the HF amateur bands, but is also used on VHF for EME, as well as meteor scatter, rain scatter, airplane scatter, or even to bounce signals off the International Space Station. Perhaps you will have a unique idea for its use.

Note that the program is designed for weak signals. Weak signals does not mean low power. On 20 meters many hams use low power (10 watts or less), but for EME, some hams use 1500 watts of output. As with all other amateur communications, the idea is to use the least amount of power necessary. If you can work the world with milliwatts, that's great. If it takes 1500 watts on 6 meters to have an EME QSO, that is also fine.

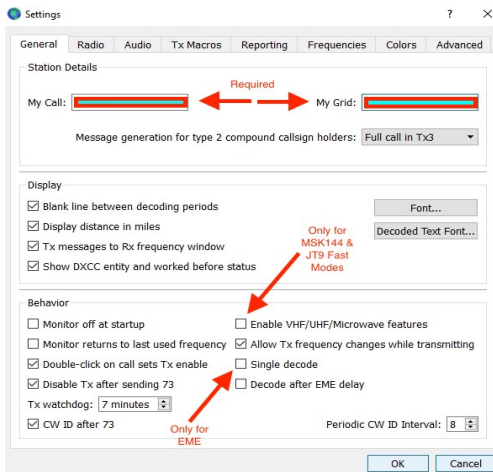
Many computers using Microsoft Windows are not very time accurate. If your PC's clock is off by just 5 seconds and you are attempting to make a QSO via meteor scatter using 15 second intervals, then you are missing one third of the receive and transmit time. Likewise your chances of having a successful QSO using 5 second intervals, then that QSO will be very unlikely to complete.

Computer time accuracy is much more important in the utilization of the FT8 mode.

There are numerous third party time clients available on the Internet for Microsoft Windows (Google is your friend).

On the next page is the first screen you should start with to setup WSJT-X, the Settings page. Your amateur radio callsign and grid square are the minimum requirements. Most of the other settings should be self-explanatory.

Not show are the Radio and Audio tabs of the Settings menu. Those are specific to your equipment. You will need to know the COM port your radio uses (if you are using computer control or CAT), as well as selecting the sound card interface. Note that you should define a default sample rate of 48000Hz 16-bit or better,



for your audio device. Do not select the sound card used for your normal computer sounds!

In the Mode dropdown menus shown below at left, you will see a list of the many modes incorporated into WSJT-X. Some users may only use one mode, while others will use several.

FT8 is especially useful for 50 MHz (6 Meter) fast Es openings lasting for a short period of time.

JT4 is designed especially for EME on the microwave bands, 2.3 GHz and above.

JT9 was originally designed for the LF, MF, and lower HF bands. Its submode JT9A is 2 dB more sensitive than JT65 while using less than 10% of the bandwidth. This means that a much larger number of QSOs can occur in the same frequency range as a JT65 signal.

JT9+JT65 as shown with the blue box, are two modes which are primarily used on HF. On the HF bands, world-wide QSOs are possible using power levels of a few watts (or even milliwatts) and compromise antennas.

JT65 by itself is actually JT65A, and is the narrowest version of JT65. It is commonly used for 6 meter EME. It is also used on HF with rigs having a limited (< 3 KHz) IF passband where mixed JT9+JT65 operation is not possible or is not a priority.

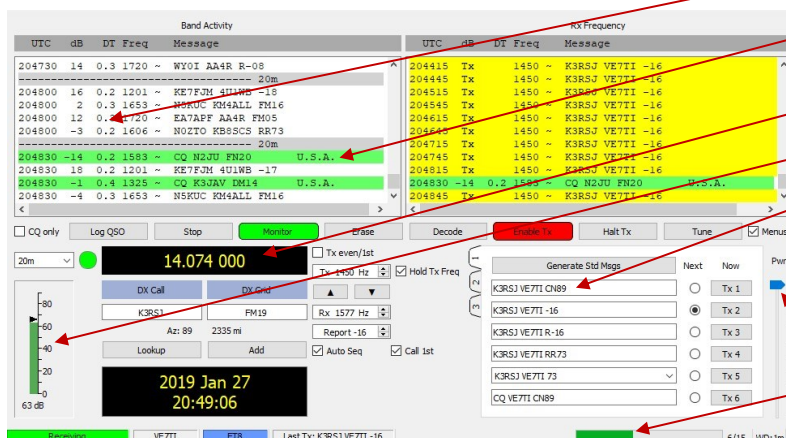
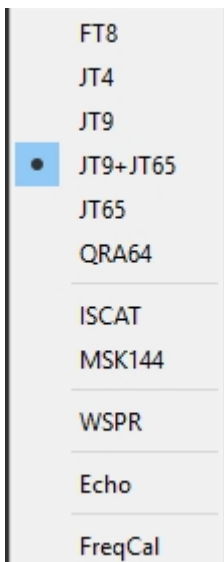
QRA64 is a newer 'experimental mode' for EME.

ISCAT, **MSK144**, and optionally submodes **JT9E-H** are "fast" protocols designed to take advantage of brief signal enhancements from ionized meteor trails, aircraft scatter, and other types of scatter propagation. These modes use timed sequences of 5, 10, 15, or 30 s duration. User messages are transmitted repeatedly at high rate (up to 250 characters per second, for MSK144) to make good use of the shortest meteor-trail reflections or "pings". ISCAT uses free-form messages up to 28 characters long, while MSK144 uses the same structured messages as the slow modes and optionally an abbreviated format with hashed callsigns.

WSPR (pronounced "whisper") stands for Weak Signal Propagation Reporter. The WSPR protocol was designed for probing potential propagation paths using low-power transmissions.

Echo mode allows you to detect and measure your own station's echoes from the moon, even if they are far below the audible threshold.

Additional technical information on the various modes can be found [here](#).



Critical time sync difference (see above)

This is the Band Activity box. Stations are coloured according to status. This one is calling CQ.

Band and frequency range

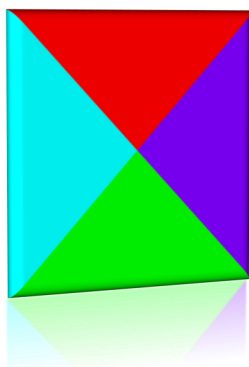
Signal strength—ideally 25-50 dB

The standard messages are automatically generated when you respond to someone (by double-clicking on their CQ) or someone responds to you.

Transmit power level

15 second transmit/receive timing bar

February 2019



Foundations Of Amateur Radio

VK6FLAB Onno Benschop

Episode 189—FT8 and the Death of Amateur Radio



*For the audio
podcast
Foundations of
Amateur Radio
visit the website:
<http://podcasts.itmaze.com.au/>*

The reported death of Amateur Radio due to FT8 is an exaggeration

In 2017 a new digital amateur mode called FT8 joined the ranks of inventions related to our hobby. Since then it's taken the amateur world by storm, filled the bands with contacts and attracted a strong following among radio amateurs across the planet. Making contacts with low solar cycle numbers has never been so easy.

Together with that following comes a growing chorus of those who decry this addition, the filling of our air with useless noise and it's too easy, not real radio, there's no conversation, who cares about contacts, I want to rag-chew, anyone can do this and it's not right. Clearly some think of FT8 as the end of amateur radio as we know it.

Recently I came across a list of other technologies that made amateur radio too easy and would cause the end of our hobby.

Amplitude Modulation or AM, Semi-automatic CW Keys or Bugs, Vacuum Tubes, Single Sideband or SSB, Radio Teletype or RTTY, Repeaters, Electronic CW Keyers, Transistors, Electronic digital programmable computers, Antenna Rotators, Integrated Circuits, Digital Signal Processing, Microprocessors, the Internet, CW Decoding Software, Automatic Link Establishment or ALE, Packet Radio, DX Clusters, Pactor and PSK.

Of course some of those make current amateurs just shake their head, or laugh out loud. Who could imagine that AM or SSB would cause the end of the hobby, given that they replaced spark-gap transmitters, which incidentally became prohibited in 1934.

As we invent new things - the ARRL referred to FT8 as the Latest Bright Shiny Object in Amateur Radio Digital World - we learn more, have more, do more and expect more. In 1675 Isaac Newton said: If I have seen further it is by standing on the shoulders of Giants.

Every invention builds on the ones that came before it and apart from the banning of the spark-gap transmitter, each of these newfangled baubles has made it into the mainstream of our community, to the point of being ubiquitous. Can you imagine an amateur radio without AM or SSB today?

Using Clublog aggregate data as the source, with almost 30 years of records, in 2002, CW became more popular than Phone for logging contacts. This is on the back of Phone contacts reducing overall as a percentage of logs, against the increase of RTTY, PSK and other modes.

In 2017 FT8 joined the fray and both Phone and CW logged contacts reduced markedly. Interestingly RTTY continues to be used though not at the levels seen at its prime between 2005 and 2010 or so.

As an overall percentage of contacts, FT8 is by far the most popular. 2018 showed that over 40% of logged contacts were on FT8, CW remains essentially stable at 30% and Phone contacts account for 20% of overall contacts logged on Clublog.

What this shows is that amateurs go where the contacts are. When CW worked better than Phone, it became the prominent mode. While CW use stayed the same, and Phone reduced, it was because contacts were being made with PSK and RTTY and other modes.

This doesn't reflect the death of a hobby, far from it. It reflects the pragmatic nature of making contacts. You use a mode that's going to work.

When amplifiers and big antennas were the name of the game, those were the tools being used by our community, but these days, FT8 has levelled the playing field for all comers. In a world where noise is ubiquitous and large antenna farms are possible for a select few, FT8 is making it possible for people to get on air and make some noise.

No doubt some will decry that these are not real contacts and that exchanging a signal report isn't a real contact. Of course it is. It's just a different contact. Just like a CW contact isn't the same as an SSB contact and glorious AM isn't the same as FM, a contact with FT8 is like any other, it's real, between two stations using radio gear.

I should point out that the logging information I looked at comes from Clublog and that in 1990 there were 2.4 Million QSO's logged. In 2018 there were 40.4 million. In the same time CQ WW increased the number of entries by almost 200%. Interestingly, CW logs outpaced SSB logs in 2003, 2006, 2008 and 2016.

On the 31st of May 1897 Mark Twain said: The report of my death was an exaggeration. I think we can safely say that Amateur Radio isn't going anywhere and FT8 isn't killing the hobby.

~ I'm Onno VK6FLAB



Episode 190: Brand New Callsign

Today I have a new callsign, it's exciting, special, kind of strange, to be known as something other than VK6FLAB.

It's hard to overstate how much of your identity as a radio amateur is linked to your callsign. It's a strange phenomenon to those who are not amateurs, or who have only just joined the community and are still learning to remember what callsign they have.

We think of callsigns as semi-permanent fixtures, but realistically they're far from that. In your life as an amateur you'll operate many callsigns, even if you never change your own. When you're operating the local club-station, you'll use that callsign, or when you're participating in a special event, say an activation of an island, or some remote DX station, or when you get on air to make noise in another country.

Some stations use special contesting callsigns, either for speed, or to commemorate another amateur. There are those who collect callsigns like badges, others only ever register one and keep it for the rest of their life.

There are provisions for applying for callsigns for short duty operation, sometimes as little as 24 hours, to mark a significant event or activation. For example, in 2013 we registered VI6PROF as a special callsign for the then Chief Scientist of Western Australia, Professor Lyn Beazley, who used that callsign for two hours after dinner during the annual conference held in VK6 that year.

There are callsigns registered for marking the end of Polio, VI6POLIO, 100 years of the Wireless Institute of Australia VI100WIA. VK100MARCONI commemorated the first direct wireless message from the UK to Australia. There are callsigns

February 2019

To listen to the podcast, visit the website: <http://podcasts.itmaze.com.au/foundations/> and scroll to the bottom for the latest episode. You can also use your podcast tool of choice and search for my callsign, VK6FLAB.

All podcast transcripts are collated and edited in an annual volume which you can find by searching for my callsign on your local Amazon store, or visit my author page: <http://amazon.com/author/owh>.

Foundations of Amateur Radio Volume 7 is out now - with chapters on digital modes, coax connector loss, waterfalls, station performance and more.

Feel free to get in touch directly via email: onno@itmaze.com.au, or follow on twitter: @vk6flab (<http://twitter.com/vk6flab/>)

If you'd like to join a weekly net for new and returning amateurs, check out the details at <http://ftroop.vk6.net>, the net runs every week on Saturday, from 00:00 to 01:00 UTC on Echolink, IRLP, AllStar Link and 2m FM via various repeaters.

ITmaze -ABN: 56 178 057 063

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onno@itmaze.com.au

registered for activating an island, like VK6WDI to activate Woody Island between the 9th and the 12th of November 2012, or VK6CHI for the Cheyene Island activation in 2007.

Special callsigns are a global phenomenon. The Straight Key Century Club operates K3Y. K1A gets used by amateurs throughout the USA for many different events, from Boy Scout camps through to the America Recycles Day, from the Georgia QSO party to the ARRL Field Day. The 2012 Olympic Games in the United Kingdom were celebrated with 2012L and 2012W callsigns. RG22RQ was for the Winter Olympic Games in Sochi.

As with anything rare, there's an active community that collects it. For special callsigns, there are amateurs who collect by trying to make contact with an elusive call, confirm their contact and receive a QSL Card to decorate their shack with.

In Australia, three times a year, on Australia Day, the 26th of January, on ANZAC Day, the 25th of April and on ITU Day, the 17th of May, a licensed amateur gets a special callsign to commemorate those special days in the calendar.

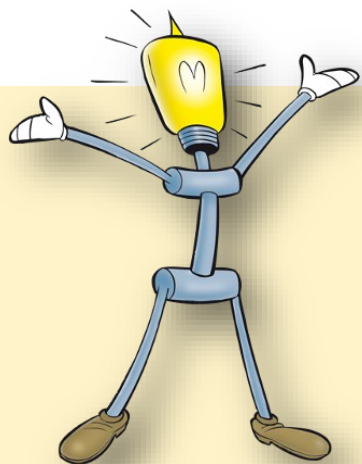
Australia Day is the official national day of Australia, marking the anniversary of the 1788 arrival of the First Fleet of British ships at Port Jackson.

ANZAC Day is the national day of remembrance in Australia and New Zealand that broadly commemorates all Australians and New Zealanders who served and died in all wars conflicts and peacekeeping operations. It's marked on the anniversary of the ANZAC landing at Gallipoli in 1915.

ITU Day is the World Telecommunication and Information Society Day, commemorating the foundation of the International Telecommunications Union on the 17th of May, 1865.

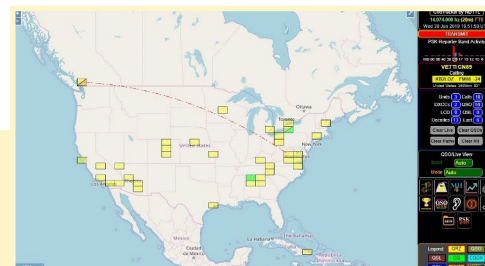
On each of these three dates, radio amateurs in Australia can replace their VK prefix with AX and use their special new callsign on-air to make contact anywhere around the world.

~ So, for now, I'm Onno AX6FLAB



GridTracker and HamAlert

Two more programs that I want to pass on, courtesy of Kevin VE7ZD. The first is GridTracker. It is a downloadable application [<https://tagloomis.com/>] for Windows, Mac or Linux that lets you keep track of the grids you have worked in FT8 and the stations you have contacted based on your standard .ADI log file. More than that, it shows you a wealth of information if you run it alongside FT8, including details about the destination callsign, PSKReporter band activity and much more. It also includes a screen providing current solar conditions. If you're looking for 'Worked All States' (WAS) or another award, this program is a must-have.



(Continued on page 37)



No-Ham Recipes

French Dressing & Macaroni Salad

French Dressing

This recipe makes 1 quart (1litre) of dressing, and is good if you use a lot of it. Reduce by 1/4 to make an amount of dressing normally found in smaller bottles. The amounts to use, in metric, are in square brackets to the right of each ingredient.

- ¾ cup (200 ml) wine vinegar [50 ml]
- 1 cup (250 ml) sugar [65 ml]
- 1 cup (250 ml) corn oil [50 ml]
- 1 can tomato soup
[10 ¾ ounce (about 315 ml) can: use 80 ml]
- ½ teaspoon (2. 5 ml) salt [dash]
- 2 tablespoons (30 ml) mustard [7. 5 ml]
- 1 tablespoon (15 ml) Worcestershire sauce [4 ml]
- ¼ teaspoon (1. 25 ml) paprika [pinch]

Place all ingredients in a lidded jar. Shake to mix, and shake before serving. Will keep indefinitely. Makes 1 quart (1litre)

~ Ann Nutter VE3HAI

Macaroni Salad

This is very quick to prepare, and most kids like it. It's a great way to sneak veggies into a meal too! If you add 1/2 cup (125 ml) grated, mild cheese like mozzarella, jack or mild cheddar, pickier kids will have a hard time turning it down. So sneaky, aren't we?

- ¾ cup (200 ml) macaroni, cooked
- ½ cup (125 ml) green onions, chopped
- ½ cup (125 ml) celery, chopped
- ½ cup (125 ml) radishes, chopped
- ½ cup (125 ml) tomatoes, chopped
- 3 hard boiled eggs, chopped

Combine all ingredients with mayonnaise. Add salt and pepper to taste.

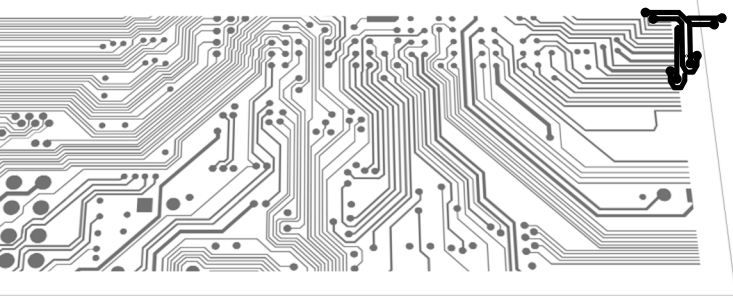
~ Thelma Tuttle VE3ARG



The second program is HamAlert [<https://hamalert.org>], available through your browser and as a basic app available on [Google Play](#) and the [App Store](#). It can receive push notifications via several means for free, and shows spots from the past 24 hours (up to 100 recent spots that were matched by a trigger that has the "App" action enabled).

HamAlert allows you to get notifications when a desired station appears on the DX cluster, the Reverse Beacon Network, SOTAwatch, or PSK Reporter. This one is not just for FT8, it can be used for any station, location or entity that you are trying to add to your log. There is no need to keep checking these resources manually if you're looking for a certain callsign, DXCC, CQ zone, IOTA island, SOTA summit or WWFF reference. You can receive alerts via Email, Push notification, SMS or URL GET/POST. You can also filter spots by various criteria. Another great add-on that helps, especially during these challenging 'spotless-Sun' days.

February 2019



TECH TOPICS

Daniel Romila VE7LCG

Arts and Crafts

More Arduino Uno

After a long wait, due in part to the Canada Post strike and another week due to the fact Canada Post placed the parcel into the mailbox of a neighbor I finally received my Arduino Uno revision 3 board. Arduino Uno is an open source microcontroller development board based on the ATmega 328P microcontroller. It has 6 analog input/output pins and 14 digital pins. It is programmable with a special software called Arduino IDE which makes the life of the user easier by being a platform based on C and C++ kind of language instead of microcontroller instructions. The programming is similar for various microcontrollers and boards based on them, which indeed makes the programming easy.

Arduino Uno is the most used and documented board from a family of Arduino boards, which include - between others - Nano, Mega and Leonardo. The Arduino environment, concept and mainly the software were developed by Hernando Barragán, a student at the Interaction Design Institute Ivrea in Italy, under the name "Wiring". Somehow his thesis advisor and faculty, got almost all credit for creating Arduino instead of the student who actually came with the idea and did it. The truth is that others also had big hardware contributions. The things written in the above paragraph are disputed and the subject of court actions. It also seems that a bunch of people

tried to associate themselves with Arduino and its funding, despite being proven as never being involved in any way. Anyhow, this is what I received in the mail:



For C\$5.83 (shipping and taxes included) I bought:

- The development board
- A plastic case for it, that I had to assemble
- The hardware for assembling the case (8 screws, 8 nuts and 4 plastic spacers)
- A USB cable, very short - so short that I never use it

The assembled product looks like this:



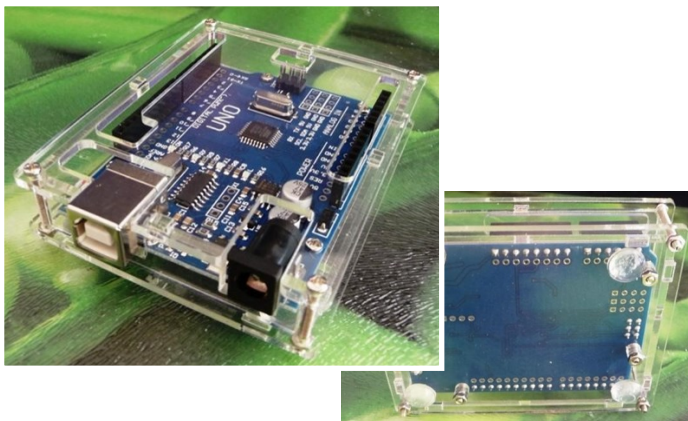
I should make clear that what I bought is not exactly the original Arduino Uno design that very few people use today. I bought a Chinese board that has a surface mounted soldered microcontroller that cannot be taken out from the board. The original Arduino Uno has a microcontroller in a socket - so it can be taken out and programmed. The USB communication integrated circuit is also different in this Chinese version, as is the faster and more stable CH340 chip, which requires additional drivers. Other than that the board has the size, the pins and the microcontroller type as the original.

Quick note: In the December "The Communicator" I already mentioned why I do not really need a

board with an extractable microcontroller. The Arduino Nano (a different version of Arduino UNO with the same microcontroller) is very similar in size and price, with the microcontroller integrated circuit. It is way more comfortable to use the whole Nano development board even if forever left in a dedicated application, since it costs only around C\$2 - 3 (shipping and taxes included).

The Arduino UNO has the advantage over other boards with the same microcontroller in that it is bigger and well documented. Almost all projects done by hobbyists are first tried with such an Arduino UNO board and later implemented with smaller versions, just by changing the wiring for that particular size, nothing else.

Assembling what I bought required me around 1 hour. I spent 50 minutes peeling off the protective paper that was put on both sides of the 6 plastic pieces. That was really hard work. I've had to do this several times with other Chinese products, especially frequency meters, and still I have difficulties with the process. Also I initially made the mistake of fully assembling the bottom plastic plate. Don't do it! Put the side plastic wall into the bottom plate first from the USB connector side, and only after screw the PCB into the bottom plastic plate. I also needed to add 4 plastic feet, so as not to damage my desk when I put on it the Arduino Uno:



One distinctive feature of the Arduino Uno board is that it has a built-in LED connected to the digital 13 pin. The board comes already loaded with a sketch (= program) that blinks the built-in LED. The board can be power supplied from USB, but also with more than 5 Volts via a dedicated plug and via a voltage regulator soldered on the board. The board itself works in 5 Volts logic. At least according to the datasheet the ATmega 328 microcontroller works with the 16 MHz crystal only at 5 Volts, and if the board is modified for 3.3 Volt logic the crystal (and the microcontroller speed) has to be downgraded to 12 MHz. The datasheet also recommends

a bunch of complicated software and bootloader changes. This sounds very scary. In practice everybody who wants the microcontroller in 3.3 Volt logic simply changes the power supply connections to all integrated circuits (that means the microcontroller and the CH340), and miraculously nobody reported that it would cause any problems at 16 MHz. The board can provide 5 Volts and 3.3 V for external use.

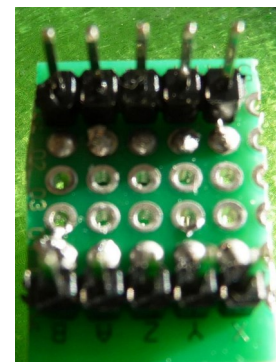
One can wonder why somebody would bother about using 3.3 V logic or 5 V logic, since almost all accessory boards (= shields, in Arduino language) know both 3.3V and 5 V, whatever it is provided to them.

I personally found an accessory declared as working only at 3.3 V, a radio module called RDA5807M, bought for C\$0.47, shipping and taxes included. The module measures 11.2 mm square and knows to receive FM stereo between 50 MHz and 119 MHz (the M version), and also to decode RDS data, like the name of the played song and the name of the radio station. It requires only 2 digital connections with the microcontroller (I2C communication). It has an antenna input, LEFT and RIGHT audio out, and power supply inputs (3.3 V).

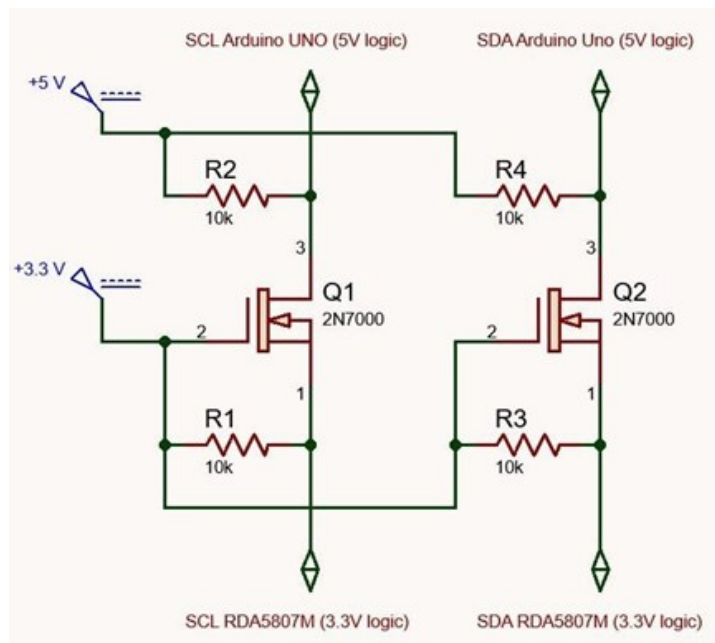
I already successfully used this radio module with a 3.3 Volt WeMOS TTGO Xi microcontroller development board, after mounting the radio module into a kind of socket made by me - remember, Christmas Arts and Crafts!



The 2 digital connections SCL and SDA must be in 3.3 V logic. I saw people on YouTube using the board at 5 V and working, but the best way is to convert the 5 V logic into 3.3 V logic and the other way around, bi-directionally.



February 2019



Of course, one can directly buy a 5V radio module, like CL5767P or TEA5767, which is the same size as RDA5807M (11.2 mm by 11.2 mm) for between C\$0.86 and C\$1.01, shipping and taxes included. It's just about how much "arts and crafts" you want to do.

Using the Arduino UNO for various applications really is doing some craftsy work. In the next picture you see - as an example, but not actually operational.

- A yellow blue 0.96 inch OLED module 128X64, bought for C\$ 2.49 (shipping and taxes included)
- A 1602 16x2 Character LCD module, bought for C\$1.67 (shipping and taxes included)

- A LED board, which in fact I did for the WeMOS TTGO Xi micro-controller development board, but which is used with exactly the same purpose for Arduino UNO

One can use his/her "craft skills" by connecting this kind of modules to make light games, radio receivers, display messages depending on various IF conditions, weather stations, CW keyers, CW decoders, CTCSS encoders/decoders and similar 'toys'. I already played with all my modules and they work.

I simply used youtube and follow step by step instructions. It was not even necessary to understand what I did, but it is fun to understand, modify and play. "Arts and Crafts."

~ 73, Daniel VE7LCG



Social Reminder

The Surrey weekly social gathering is on Saturday at the Kalmar Restaurant at 80th and King George Boulevard between 8 and 10:00 am. You don't have to be a SARC member to participate. Bring your significant other, bring your family, see old friends and have fun.



Sponsored by the Orca DX and Contest Club

**1600z Feb 2 to 0359z Feb 3 and
1600z to 2359z Feb 3**

Please note, BCQP Saturday and Sunday operation is NOT split by mode. Operate PH, CW and/or digital as you wish, on one day or both during the designated blocks of time.

Key Details

Objectives:

Stations outside BC have to find as many VE7/VA7s as possible in the 20 hours of the contest.

BC stations will be taking calls from anyone, anywhere

Exchange:

BC stations give RS(T) + three-letter code representing the federal electoral district in BC

Stations outside BC give province/state/"DX"

*In BCQP, Hawaii and Alaska are not considered DX. Stations in KH6 and KL7 will give "HI" and "AK", respectively. Stations outside the U.S. and Canada will give "DX".

Remember!

- Collectible, original photo certificates for top scores in all classes, BC and outside BC. New photo every year! Plus, BC-themed keepsakes.
- For BC stations: Special photo certificates for top score in each federal electoral district. For stations outside BC: Special

recognition for new records, including first ever received logs from a DXCC location.

- Plaques awarded in 10 sponsored categories: Top YL, Top BC single-op, Top BC multi-op, Top US, Top Canada outside BC, Top DX, Top Mixed Mode, Top CW, Most Federal Districts Contacted and Top Club in BC
- BCQP is fully supported by N1MM contest logging software, CQ/X GPS-enabled software for mobile contesting, N3FJP state QSO party logging programs and several other generic programs. Any software that creates a Cabrillo log is OK but the content MUST show the required information. See the rules for details.
- Follow links at <http://orcadxcc.org/bcqp.html> for rules, multiplier list, FAQs, in-depth event analysis/reports and scores from past years, and examples of photo certificates and plaques .

Join us! It's always a whale of a good time.

There's never been a better time to collect some nice wallpaper for the shack wall. Even if BCQP is not your target contest of the weekend, if you hear a BC station calling "CQ BCQP", contact him/her, find more VE7/VA7s, keep track of the QSOs and send in a log. GL and 73!

Questions?

Email the contest coordinator, Rebecca VA7BEC at va7bec@rac.ca

February 2019

SOLDER SPLATTER

An Inexpensive Interface Cable For Baofeng

I know many of us have Baofeng and Wouxun transceivers. I recently came across this tip to cannibalize an inexpensive mic for the cable, which can then be easily interfaced to a TNC or other digital device.

The Baofeng UV-5R and similar radios are extremely inexpensive dual band (2m/70cm) HT's that are widely used for FM voice communication. But what about using them on packet radio? Yes, this is possible, but a number of people have had problems with either home made cables are some that were bought commercially. The major problem is that the radio keys, but does not unkey. It seems to be a grounding problem because when you bring your hand close to the radio, it then unkeys. More information on how to fix this momentarily.

One way to overcome this is to make your own radio/TNC cable using a speaker/microphone that is designed for the Baofeng radio. You then cut off the microphone and just use the cable and connector. This may sound expensive, but as it turns out, speaker/mics are available for the Baofeng on line in the US\$5 range. Do a search on Amazon for "Baofeng Speaker" and you will find them. You will also need a 5 pin DIN or 9 pin serial plug for the other end of the cable.

You can buy these DIN Plugs on the TNC-X web site for \$2 and serial plugs are universally available. Locally [Lee's Electronics](#) is my choice for supplier.

Here is the Baofeng Speaker/Mic purchased from Amazon. The pin out for the plug is:

- TX Audio: Ring on big plug
- Ground: Sleeve on small plug
- PTT: Sleeve on big plug
- RX Audio: Tip on small plug

In the photo lower left, the 3 screws that hold the microphone rear plate in place have been removed and it is opened up. You can see that the wires are labelled on the printed circuit board, which makes it easy to figure out which wire is which. On this microphone the connections are as follows:

- Red = TXAudio
- White = Ground
- Black = PTT
- Green = RXAudio



NOTE 1: Some of these mics have the M- (ground) and SP+ (RXAudio) wires reversed. Since these wires are connected to the speaker, this doesn't matter for the operation of the speaker/mic, but it does matter for TNC connections. Typically the white wire is ground and the green wire is RXAudio. To be certain, clip the microphone off the cord and check the continuity between the white wire and the sleeve on the small plug.

NOTE 2: A few Baofeng speaker/mics don't work. It is suggested that before you cut the cable, make sure the speaker/mic works with your Baofeng HT. If it does not work, the cable probably won't work either.

The next step is to strip the wires and tin them with solder. Notice that the black wire is significantly shorter than the other wires.

Solder a 2.2K resistor onto the pin where the PTT (black) wire is going to be attached. (This will solve the problem of the TNC getting stuck in transmit. Use as small a resistor as will fit, wattage is not important. Next solder the connector on to the remaining wires.

Here's the completed cable, ready to go! As you can see it is not a difficult assembly process. However, if you would like to buy one already built, they are available for \$20 plus shipping from <https://www.tnc-x.com/> This company also sells TNC kits.



Above: Completed cable
Left:: 5-pin DIN and 9-pin D-sub options

Welcome to Communications Academy 2019!

Mark your calendar, the 21st Annual Communications Academy will be held on: April 13th & 14th, 2019

The Theme of This Year's Academy Will Be:

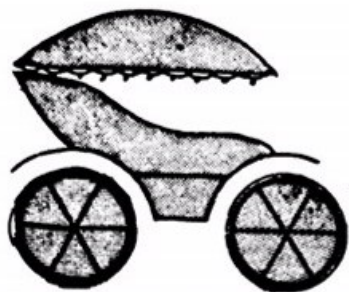
"COMMUNICATIONS RESPONSE TO CATASTROPHIC EVENTS"

Communications Academy is two days of training and information on various aspects of emergency communications. Amateur Radio Emergency Services (ARES); Auxiliary Communications Service (ACS); EOC Support Teams; Radio Amateur Civil Emergency Service (RACES), Civil Air Patrol, Coast Guard Auxiliary, REACT, CERT and anyone interested in emergency communications should attend. Learn, network, and share your experiences with others.

The Communications Academy is open to anyone with an interest in emergency communications, volunteer or professional. The presentations are designed to promote the development of knowledgeable, skilled emergency communicators who will support their local communities during a disaster or emergency response.

<http://commacademy.org/>





SURREY AMATEUR RADIO CLUB COMMUNICATOR (VE7SAR)

P.O. Box 542, Surrey, B.C. V4T 5B7

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August 1983

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Thanks to Kjeld VE7GP for providing
this look back to Field Day 1983

Mike VE7CLE

Carey VE7CFC

FIELD DAY 1983

Field Day 1983 VE7SAR style was as in past years, a resounding first class event which ran like a well oiled machine.

In addition to the die hard old (as in Surrey ARC Field Days Hams) we did have some new operating blood to mention one in particular Ken Clarke. Ken held the fort for the 80 meters C.W. slot for many hours. A most commendable effort considering the very short time he has had his Ham ticket. Good show Ken, hope to see you next year.

While we are on the subject of mentioning Field Day people the author of this "blurb" can always be assured that Alvin VE7CDC will have a new twist to "colour your Field Day". This year was no exception.

The diary of events went something like this:

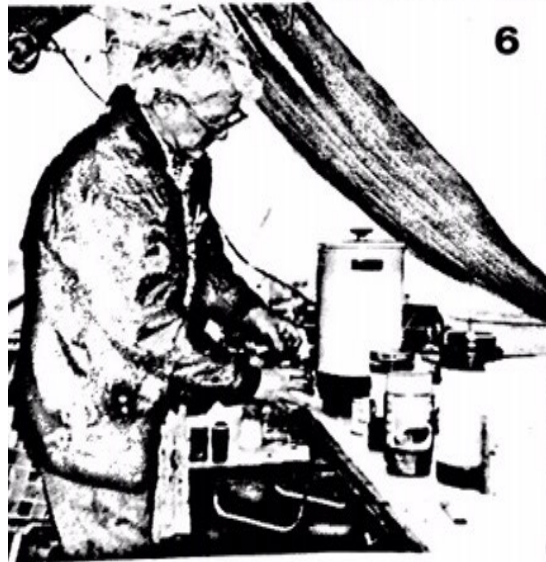
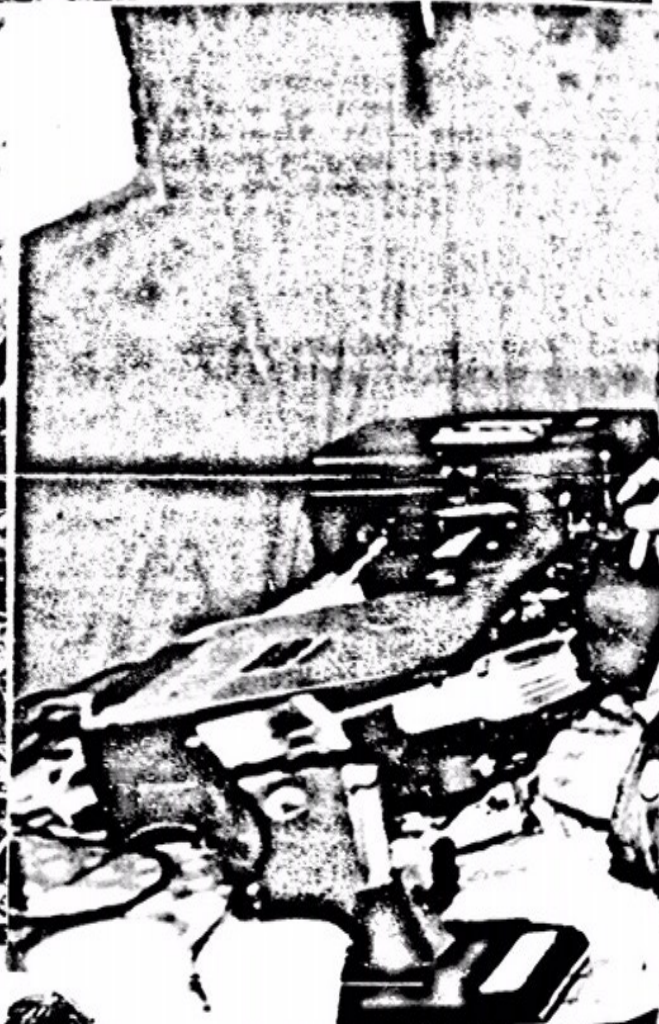
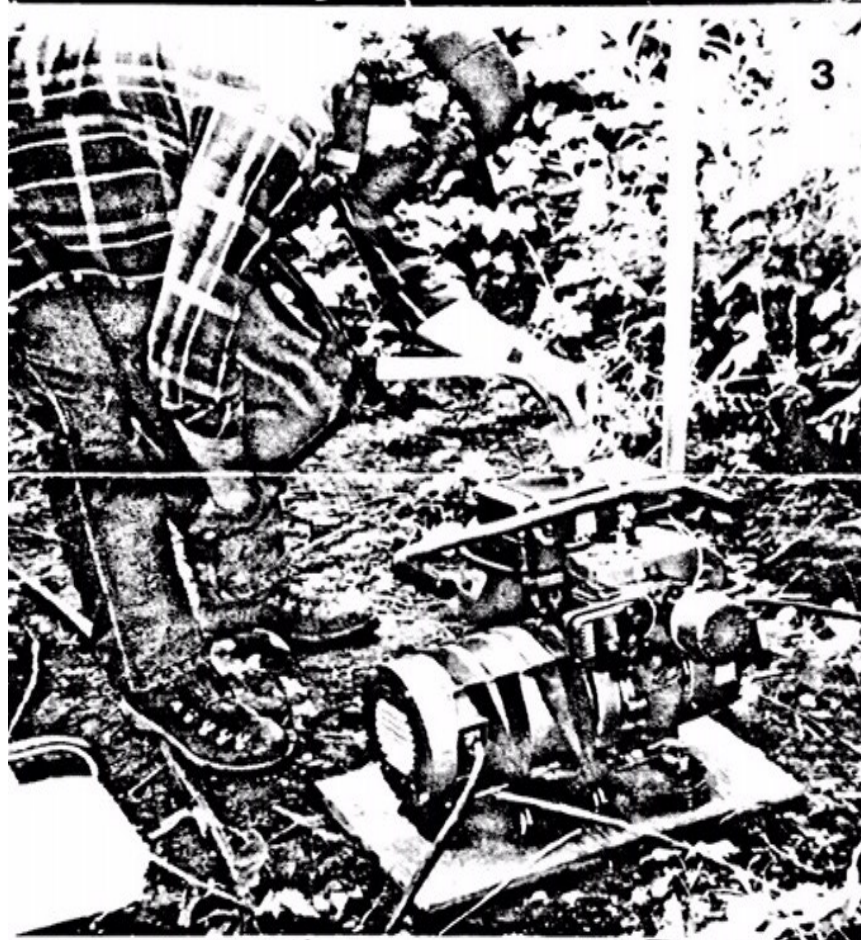
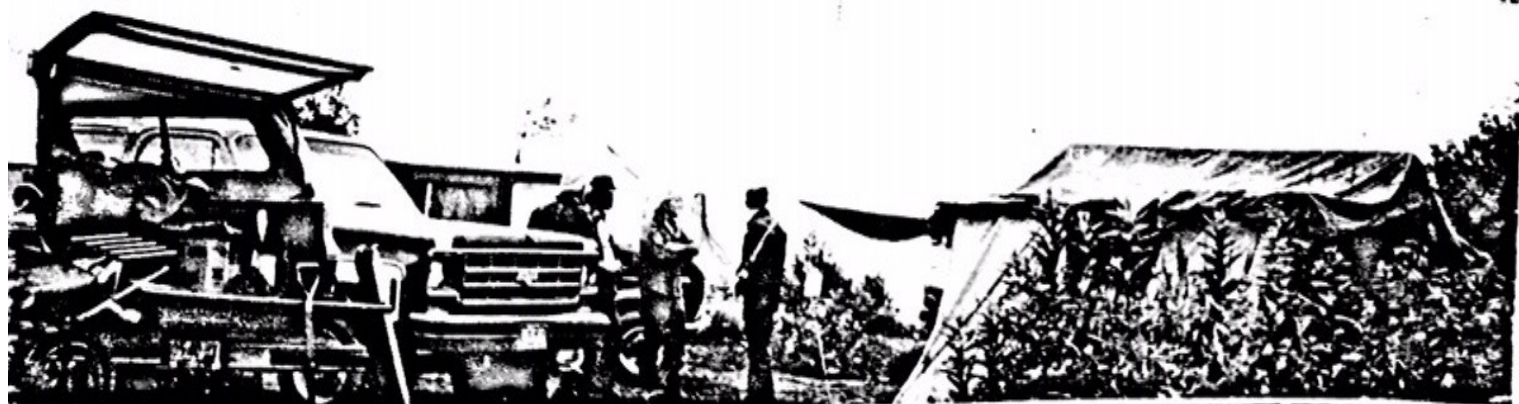
Two weekends prior to Field Day a group of field day regulars, i.e. Jim VE7 CSJ, Fred VE7CJG and of course Alvin trucked up the

mountain road with the intentions of removing a tree stump that had blocked the road from a winter storm. On reaching the base of the hill we were confronted by a log skidder coming down the hill. As Alvin was driving the lead truck he did the asking of what was the skidder doing on OUR road, especially two Field Day!! We learned some good news and some bad news. The operator had pushed the tree stump off to the side of the road. The bad news was he had knocked down the two commercial antenna wood poles which we use to support our 75/40 Mtr dipoles. He (the operator) had been authorized by the site user i.e. Dept. of Lands and Forests to remove the poles.

On reaching the site we discovered one of the poles (the longest) laying in the grass just below the hill top.

After completing what we originally set out to do, i.e. clean off the site area of the

continued on back page



Report From The President

I would like to welcome all of you for the 1983-84 season of the Surrey Amateur Radio Club. As President again this year, I know that a lot is expected of myself and the Executive to provide an interesting agenda for the club this year. We will, with your help, try to do just that.

This year, the executive has changed with the departure of Ike, VE7BJH and Carl, VE7CLC and the addition of Mike, VE7CLE as Treasurer, and Bill, VE7EZF as Secretary. I would like to wish Ike and Carl all the best and encourage their continued participation in the Club. The new executive will meet prior to the first meeting to work out some plans for the coming year.

On the subject of the executive, I regret to inform the membership that due to personal commitments, Jim, VE7CSJ is unable to continue his activity with us this year. He has, therefore, tendered his resignation as Vice President. As with Ike and Carl I wish Jim all the best, and look forward to benefiting from his expertise in many areas. I wonder if there is anyone in the membership who would volunteer to step into the position of Vice President for this year?

I look forward to having a good year with the club. I anticipate a number of new projects that perhaps will involve more than a few of us. Hopefully, there will be enough to keep us going, particularly community assistance events and of course, we may hear more about the projected amateur participation at Expo 86. I hope to see some more PEP activity which seems to have been taken out of our thoughts of late.

The Executive will rely on your suggestions and support to make this year a good one for the Surrey Club. I would hope that even with our increased dues this year, we will have a good solid membership from which to draw upon.

I look forward to working with you again this year and as last, seek your support and encouragement. Best 73 Ralph, VE7OM

DOC HAM RADIO EXAMS

There will be one more examination based on old syllabus on October 19th. The new TRC24 does not take effect until February 1st, 1984 where the MORSE CODE sending test will be re-instated. Well, I guess there will a full house on the 19th. ?

FLEA MARKET

Keep an ear open for Fall Electronic Flea Market coming in October. Take stock of all those goodies that you think served out your needs, someone else might just want it?

Same time on Sunday and the same QTH but the date hasn't been decided yet.

FIELD DAY 1983 from page one

remains of the old VHF radio rptg buildings, it was decided to leave.

Now, Alvin decided that as the ex radio pole was "just laying in the grass" why not break out the chain saws and reduce one 80 ft. pole to 4 ft. lengths for future reduction to fire logs.

Half an hour later the poles was neatly loaded on Alvin's large H.D. utility trailer

We had almost reached the bottom of the hill when who should be coming up, you guessed it, the same log skidder we met early in the day. This time he did not pull over to one side after noting Alvin had one of, quote, nice long poles cut up into neat 4 ft. lengths.

We were duly informed by the alleged pole owner that he had bought them and was skidding these along with the power poles to his farm to make a silo.

To the average every day ham who is born to scrounge even if only a little to get out of this situation was all but impossible.

I was about to suggest we all chip in and make restitution by offering payment for the bundle of very short poles (4ft.long).

Then Alvin to the diplomatic rescue with reasons that would rate 100 on a scale of 1 to 100 and should be entered in the Guinness book of records at the worlds best "snow job" he conveyed log skidder operator that we "Hams" were totally blameless in every aspect of the word. Talk about sweat innocence Alvin's speech was a classic to be hold. You will go far in this world Alvin!!

Well thats it for 1983 Field day , except to tell you we raked up a total score of 4,632 points. This will put us in very good standing in the 3A class.

Look for the Official Results in November QST. 73's Mike VE7AVM

MEMBERSHIP RENEWAL FORMS

Your membership renewal application are enclosed with this issue of the news letter. Please fill out the form clearly complete with postal code, as this will be used for your mailing address. The old mailing list will again be used for September issue of the Communicator, but for October issue only those who have a paid up membership will be included in the Roster or mailing list.

NEXT MEETING

Monday, September 12, 1983 at 7:30 P.M. in Guildford Park Secondary Community School, Room 108, 14577-106A Avenue, Surrey, B.C. Please make every effort to attend our first meeting with new executive.

AMATEUR RADIO CLASSES

Max Green VE7DZ will again conduct amateur classes sometimes in September. Dates will be announced later.



Tidbits from the Amateur Radio World

January SEA-PAC Update

The SEA-PAC committee continues to work putting together another great convention for 2019. There is only a few weeks until registration opens on February 15. Hotels have now announced their special SEA-PAC rates. Many fill up quickly, so book your rooms now.

ARRL CEO Howard Michel, WB2ITX, Bob Inderbitzen, NQ1R, ARRL Northwest Division Director Mike Ritz, W7VO and Vice-Director Mark Tharp, KB7HDX will be attending. Here's your chance to visit with them one on one.

Jeri Ellsworth, AI6TK will be the keynote speaker at the Saturday evening banquet and also at the Saturday YL lunch. The Saturday DX lunch presentation will be about the 2018 Norfolk Island DXpedition.

There will be one or two Friday workshops in addition to many seminars. Meanwhile, if you would like to be a presenter, we would like to hear from you with your ideas. Contact us at seminars@seapac.org or workshops@seapac.org as appropriate.

We will have many outstanding door prizes for the Saturday and Sunday drawings this year. The Saturday drawing includes a Yaesu FTDX-1200 HF, Icom IC-718, Kenwood TM-D710G and several HT's. The Sunday drawing includes an Icom IC-7300 HF radio, Kenwood TS-480 HX, Yaesu FTM-400XDR and several other HT's. Both

drawings will include many other mobile and VHF/UHF transceivers. There will be some other great banquet and early bird prizes. Register before April 15 to be entered in the early bird drawing.

We will again have a SEA-PAC collector's pin contest. Winner gets 2 tickets to the Saturday night banquet. See if you can design a pin for 2019. Details on the web page.

The Seaside Convention Center expansion of the facilities continues at a rapid pace. It may not be totally completed by the time we start the convention, so we ask your indulgence as we work around the construction changes this year. The flea market area will be the most impacted and limited in available space this year. Flea marketers that have pre-registered last year will be notified about this soon. To see photos of the construction visit <https://www.seasideconvention.com> and click on "expansion" in the top banner.

General registrations will open on February 15, 2019.

For additional SEA-PAC information and updates please visit the web site at www.seapac.org.

~ SEA-PAC Committee

GOV. GOODWIN J. KNIGHT (seated) issued the first ham license plates bearing an amateur radio station call sign to Archie Waring of Oakland January 13, 1954.



February 2019



RAC Amateur Of The Year 2018



Gabor Horvath VE7JH

From the current TCA edition on page 5, The RAC Board of Directors takes great pleasure in selecting Gabor Horvath, VE7JH, as the recipient of the RAC Amateur of the Year Award for 2018.

In his President's Message in the January-February 2019 issue of The Canadian Amateur magazine, RAC President Glenn MacDonell, VE3XRA, writes:

"Gabor has demonstrated an intense commitment to diverse aspects of Amateur Radio and in 2010 he was recognized as the Pacific Northwest VHF'er of the Year for consistently promoting and encouraging VHF/UHF/microwave activity in the Pacific Northwest.

"He was the only Canadian to compete in the 14th IARU High Speed Telegraphy World Championship in 2017 and was one of only four Canadians competing in the 2018 World Radiosport Team Championship in 2018. "In addition, he was a key volunteer in developing the RAC Canada 150 Award in 2017 and he also provided an article on the Cowichan Valley Amateur Radio Society's Search and Rescue efforts in the January-February 2018 issue of TCA."

Born in Hungary and introduced to Amateur Radio in elementary school as HA2KMR, Gabor Horvath has held VE3GBA, VE7DXG and VE7JH call signs. Gabor is a member of Radio Amateurs of Canada, the Pacific Northwest VHF Society, ORCA DX and Contest Club, and the Cowichan Valley Amateur Radio Society.

Gabor is active on VHF, usually as a portable on 50, 144, 222, 432, 903, 1296 and 10,368, EME and meteor scatter. He

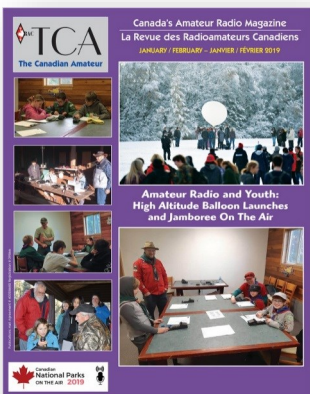
enjoys HF contesting. His home station is an ICOM-706 with 100W, a 3-el tribander and wires for the lower bands but he also operates from the VE7UF contest station.

Gabor was an operator at TM100VIMY and represented IARU Region 2 in the 14th IARU World HST Championship, in Esztergom, Hungary which included 105 participants from 18 Countries.

The Award was issued for contacting the RAC stations between July 1, 2017 and December 31, 2017. Gabor was instrumental in using his extensive contacts to ensure that all Provinces and Territories were represented. This project led to a nationwide response with 250+ activations of the RAC call sign resulting in 60,000 QSOs.

More details at in the current edition of TCA magazine and <https://wp.rac.ca/rac-amateur-of-the-year/>.

And while you are perusing TCA magazine, check page 32, "Our JOTA-JOTI 2018 Experience: Scouts on the Air" by John Schouten VE7TI. This event was staged by the Surrey and Langley clubs. John's article reports on event activities including and introduction to Amateur radio, HF stations, VHF/UHF stations, emergency communication, fox hunting, Morse code and satellite contacts.



The January 2019 RAC TCA magazine features our JOTA story

Canadian
National Parks
ON THE AIR 2019

<https://cnpota.ca/>





John Brodie VA7XB

NEPP and Mesh Networks

Some Thoughts on the Neighbourhood Emergency Preparedness Program

Through a recent community event I became aware of the Neighbourhood Emergency Preparedness Program (NEPP) initiative in general and, more specifically, the need for one in our area. NEPP is based on the recognition that in a major emergency, the infrastructure including power, telephone, and Internet may fail, and these events may be accompanied by damage to homes, businesses, infrastructure and services, leaving residents to fend for themselves until services are restored.

The government's objective in promoting NEPP is simply to motivate residents to plan for any emergency where they may have to survive on their own without outside help for several days immediately following the event.

Communication is one component of that strategic planning. But what kind of communication and with whom? My personal interpretation of the unstated objectives is to have the ability: a) to communicate directly with neighbours for self-help when normal services are unavailable, and b) to summon emergency services if needed.

I met on January 16th with a couple of Board members of our local Ratepayers Association and I, as the only ham operator present, was asked to consider how amateur radio might fill the need for communications within the NEPP program.

At this initial stage I had no answers, other than "contact a ham".

Subsequently, looking for an existing model of a suitable communications program, I was unable to identify any NEPP community which has defined the term "communication" or thought out and documented its organizational structure and practical aspects.

SARC members are aware that since its inception (and indeed as stated in its Constitution) our organization has been involved in public service by providing communications at public events and training exercises, often in association with Surrey Emergency Program Amateur Radio (SEPAR) which focuses on civic emergencies, with SARC members historically providing the bulk of SEPAR infrastructure and technical support.

We continue to support and improve our emergency capability to encompass new technologies. SARC has recently assigned a higher profile to community service through creation of a "Public Service Group" within our organization. Not to be confused with the mandate of SEPAR, public service provides realistic training opportunities that are difficult to simulate by other means.

In researching the topic of "amateur radio emergency communication" the term "Wi-Fi or broadband mesh network" kept coming up. For example, I found many references to "Broadband-Hamnet™" (formerly HSMM-Mesh™) which has led the way in

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www.broadband-hamnet.org



February 2019

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SARC REPEATER MANAGER

[repeater @ ve7sar.net](mailto:repeater@ve7sar.net)

conversion of household WI-FI routers to microwave mesh nodes. As nodes are powered up, the firmware enables each node to discover other nodes within range, form network paths and transfer data automatically. Broadband-Hamnet™ is intended for amateur radio use and passing amateur radio traffic; it is not intended to replace a personal internet connection.

Broadband mesh networks are not new; their use has spread all across the US and around the world and there are many variations, some that allow for use of smart phones. For example, mesh networks were quickly set up in Puerto Rico to establish communication after the devastating 2018 hurricane. A mesh network can transport data or use application software residing at another location just like your home or office network.

Some of the WI-FI 802.11B/G channels in the 2.4 GHz band overlap the amateur radio band. A person who holds an amateur radio license may attach an amplifier and antenna to the node to increase its useful range to 10 miles or more (or so it is said). The graphic shows the Linksys WRT54G, a commonly used consumer router suitable for mesh communication.

Other platforms and bands include several types of Ubiquiti equipment in the 900 MHz, 2.4 GHz and 5.7 GHz bands.

Thinking one step further for the NEPP in our area, if a community mesh network (powered via solar cells or battery) could be linked to SARC's Operations and Training Centre and the BC WARN network it would widen the capability through an assured Internet connection. Although SARC's VHF and UHF repeaters are connected to the BC Warn network at the EOC (Firehall 1) and SARC's repeater site in Central Surrey, there is yet no microwave link to our Operations and Training Centre further south, because of line-of-sight limitations; however, a remedy exists for this.

Here the question I'm working up to: Would SARC's Public Service Group be prepared to devote know-how and resources to develop a pilot or demonstration project to test the applicability of mesh technology for use by hams within this NEPP - our neighbourhood already has 20 licensed amateurs within a 1 sq mile area and, in addition, SARC is willing to sponsor a basic licensing course for others who wish to participate. If successful it might service as a model for adoption by other communities. We need to explore this concept further with the Surrey Emergency Program, the Surrey NEPP Coordinator and the BC WARN team as there appears to exist a commonality of need amongst the various groups.

Further Reading:

A Ham Mesh Network Primer
<http://oemcomm.org/ham-mesh-network-primer/>

Broadband-Hamnet™
<http://www.broadband-hamnet.org/>
and <http://www.hsmm-mesh.org/just-starting-read-this.html>

BC WARN <https://bcwarn.net/>

Amateur Radio WI-FI mesh networks
<https://www.amateurradio.com/ham-radio-and-mesh-networks/>

TCP/IP over Wi-Fi Mesh Amateur Radio
<https://www.scc-ares-races.org/data/access/tcpip-mesh/tcpip-mesh-access.html>

Modifying Consumer Off the Shelf Wireless LAN devices
<https://www.qsl.net/kb9mwr/projects/wireless/modify.html>

NEPP <https://www.surrey.ca/city-services/698.aspx>

- John VA7XB



It's February

We have a special guest at our February meeting on the 13th. Mr. Bruce Claggett VE7HHI, Senior Managing Editor at AM radio station News1130 will speak on the media in general and how they get messages out in an emergency.

Bruce is a BCIT journalism graduate and former faculty instructor who started his career as a summer announcer and feature reporter at Mountain FM in Squamish back in 1986. Since that time, he has been heard as a newscaster and reporter at CKCQ Quesnel, CFVR Abbotsford and CKNW Vancouver. He has also worked in the film industry, taught high school in Vancouver and earned degrees from UBC in Education and Geography. In 2006, he received a Jack Webster Foundation Poynter Institute Fellowship. In 2013, he became a finalist for the Jack Webster Award for Excellence in Digital Journalism. Please join us, visitors always welcome.



Down The Log...

SARC Monthly Meetings

2nd Wed. (Sept-Jun)
1900 hr at the PREOC
Emergency Mgmt BC
14292 Green Timbers
Way, Surrey, BC

Weekly SARC Breakfast

Saturday between 0800
and 1000 hrs at the
Kalmar Family Restaurant
8076 King George Blvd.
Surrey

SARC Net

Tuesday at 2000 hr local
on 147.360 MHz (+)
Tone=110.9

SEPARS Net

Tuesday at 1930 hr local
on 147.360 MHz (+)
Tone=110.9

VE7RSC Repeaters

2m: 147.360MHz+
Tone= 110.9Hz
IRLP node 1736
Echolink node 496228

1.2m: 223.960 Mhz -1.6
Tone=110.9

70cm: 443.775MHz+
Tone= 110.9Hz
IRLP node 1737

SARC hosts an Amateur Radio net each Tuesday evening at 8 PM. Please tune in to the VE7RSC repeater at 147.360 MHz (+600 KHz) Tone=110.9, also accessible on IRLP node 1736 and Echolink node 496228.

On UHF we operate a repeater on 443.775MHz (+5MHz) Tone=110.9 or IRLP Node 1737.

	SARC Net 20:00 Hrs
1 st Tuesday Standby	Drew VA7DRW Dixie VA7DIX
2 nd Tuesday Standby	Jinty VA7JMR Sheldon VA7XNL
3 rd Tuesday Standby	Rob VE7CZV Vacant
4 th Tuesday Standby	Kapila VE7KGK John VA7XB
5 th Tuesday Standby	Robert VA7FMR John VE7TI
Want a turn at Net Control? Contact the SARC Net Manager	



We Have A SARC Patch!

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